



September 23, 2020

***Via Sharefile***

Mr. Andrew Park  
Hazardous Waste Programs Branch  
US Environmental Protection Agency Region 2  
290 Broadway, 22<sup>nd</sup> Floor  
New York, New York 10007-1866

**Re: Revised CA725 Environmental Indicator  
Hess Corporation Former Port Reading Complex  
Port Reading, Middlesex County, New Jersey  
NJDEP PI# 006148  
EPA ID No. NJD045445483**

Dear Mr. Park:

Attached please find the Revised CA725 Environmental Indicator Report for the above-referenced site. Should you have any questions or require additional information, please contact me at 732-739-6444 or via e-mail at [ablake@earthsys.net](mailto:ablake@earthsys.net). If you have any questions relating to the project and schedule moving forward, you can also contact Mr. John Schenkewitz of Hess Corporation at 609-406-3969.

Sincerely,

A handwritten signature in blue ink that reads "Andy Blake".

Sr. Project Manager

- c. Ms. Julia Galayda, NJDEP Case Manager (via Sharefile)
- Mr. John Schenkewitz – Hess Corporation (via Sharefile)
- Mr. Rick Ofsanko – Earth Systems (via Sharefile)
- Mr. John Virgie – Earth Systems (via Sharefile)

## DOCUMENTATION OF ENVIRONMENTAL INDICATOR DETERMINATION

### RCRA Corrective Action Environmental Indicator (EI) RCRIS code (CA725)

#### Current Human Exposures Under Control

Facility Name: Hess Corporation – Former Port Reading Complex

Facility Address: 750 Cliff Road, Port Reading (Woodbridge Township), NJ

Facility EPA ID #: NJD045445483

1. Has **all** available relevant/significant information on known and reasonably suspected releases to soil, groundwater, surface water/sediments, and air, subject to RCRA Corrective Action (e.g., from Solid Waste Management Units (SWMU), Regulated Units (RU), and Areas of Concern (AOC)), been **considered** in this EI determination?

  X   If yes – check here and continue with #2 below.

       If no – re-evaluate existing data, or

       If data are not available skip to #6 and enter “IN” (more information needed) status code.

#### **BACKGROUND**

The Hess Corporation – Former Port Reading Complex (HC-PR or Site) was operated as a petroleum refinery and bulk petroleum storage terminal by the Hess Corporation (Hess) since 1958, with refinery expansions occurring between 1958 and 1970. In 1974, refining operations were suspended and the facility operated only as a bulk storage and distribution terminal until 1985. In April 1985, following a retrofit, the facility resumed refining operations; producing gasoline, fuel oil, and other hydrocarbon products (e.g. methane, ethane, and liquid petroleum gas). In 2013, Hess sold the facility to Buckeye Partners L.P. (Buckeye), who continues to use the facility for bulk storage and distribution of petroleum products. The demolition of the refining portion of the facility was completed in early 2015.

The Site is located east of West Avenue, southeast of Port Reading Avenue, and southwest of the Conrail Port Reading rail yard and former coal docks. The Arthur Kill shipping channel is located adjacent to the site on the east/southeast and Smith Creek, a tributary of the Arthur Kill, is located to the south of the Site. The PSE&G Sewaren Generating Facility is located southwest of the Site (see **Figure 1**). A Site Plan is included as **Figure 2** and a tax map is included as **Figure 3**. The closest residential properties are located approximately 550 feet to the west of Cliff Road. The closest child-care facility is located approximately 900 feet to the west of Cliff Road. A map depicting surrounding land uses is included as **Figure 5**.

Due to historic operations, the Site is jointly regulated by both the New Jersey Department of Environmental Protection (NJDEP) and the EPA. The Site is regulated under the NJ Industrial Site Recovery Act (ISRA) due to the sale of the property and subject to RCRA regulations since former



operations required the treatment, storage, and disposal of hazardous waste. The EPA issued a Hazardous and Solid Waste Amendments (HSWA) Permit (No. NJD045445483) for the Port Reading facility effective May 1, 1988. The HSWA Permit requires the nature, extent, and rate of migration be determined for hazardous waste or hazardous constituents in soils, groundwater and sediment at any solid waste management unit (SWMU). The North Landfarm operated from 1975 to October 24, 1985, receiving Interim Status in 1980, as part of the USEPA permitting process and the Discharge to Groundwater permitting process under the New Jersey Pollutant Discharge Elimination System (NJPDES) for the facility. The South Landfarm was operated during the refinery standby period from 1975 until 1984. In 1980, the South Landfarm received RCRA "Interim Status" for operation as a RCRA land treatment unit for process wastes (K051 and K052). The No. 1 Landfarm began operations in December 1985 under a revised Part A Interim Status Permit granted by the NJDEP on April 26, 1984 and the RCRA Industrial Waste Management Facility (IWMF) Operating Permit (Interim NJPDES Discharge to Groundwater Permit No.: NJ 0028878 issued in April 1985) for operation of the No. 1 Landfarm. On November 14, 1995, Hess was informed, via NJDEP correspondence, that the Bureau of Federal Case Management (BFCM) would assume oversight of the North and South Landfarms in addition to other applicable areas of concern.

All landfarms are no longer operational. The following is the current status of each landfarm:

**North Landfarm** – A Remedial Action Workplan (RAW) was submitted to the USEPA and NJDEP for the North Landfarm in September 2016. A 90% Soil Remediation Action Design (RAD) for the North Landfarm engineering control was submitted to the USEPA and NJDEP on October 24, 2019. The NJDEP and USEPA issued an approval letter for the 90% design on April 28, 2020. The current owner, Buckeye, is in the process of lining the tankfield located directly adjacent to the North Landfarm. The 100% RAD will be finalized once the tankfield lining project is complete and as-built drawings are provided to Hess/Earth Systems.

**South Landfarm** – A RAW was submitted to the USEPA and NJDEP for the South Landfarm in September 2016. The 90% Soil RAD is currently being developed.

**No. 1 Landfarm** - A RAW was submitted to the USEPA and NJDEP in September 2016. The 100% design for the No. 1 Landfarm engineering control was submitted on May 24, 2019. Comments regarding the 100% engineering control design submittal were received from the NJDEP on October 7, 2019. The comments were addressed by Hess/Earth Systems on November 1, 2019 and the NJDEP subsequently approved the response. The NJDEP and USEPA issued an approval letter of the 100% design on April 28, 2020. The following permits have been submitted and are currently being reviewed by the respective agencies:

- Soil Erosion & Sediment Control Plan (Freehold Soil Conservation District)
- Flood Hazard Area Individual Permit (NJDEP Land Use Regulation Program)
- Waterfront Development GP-11 Permit (NJDEP Land Use Regulation Program)
- Freshwater Wetland GP-4 Permit (NJDEP Land Use Regulation Program)
- NJPDES B4B Permit (NJDEP Wastewater Program)
- Treatment Works Approval TWA-1 Permit (NJDEP Wastewater Program)
- NJPDES Individual Permit (NJDEP Stormwater Program)

Once permit review and approval is complete, installation of the No. 1 Landfarm cap (engineering control) will begin.

As per the RAWs, a Remedial Action Permit for soil and groundwater will be established for the entire Site, including the landfarms and the aeration basins, to document the engineering controls (cap) and impacts that will be left in place. The groundwater RAP will specify the groundwater monitoring requirements.

Hess understands that the intended future use of the Site is as a bulk petroleum storage facility. The deed restriction will restrict use of the Site to commercial/industrial purposes. The groundwater Classification Exception Area (CEA) will document the nature and extent of groundwater impacts for the Site and require that wells are installed in the area according to the Well Restriction document that will accompany the final CEA. Future groundwater analytical results will be compared to the NJ Groundwater Quality Standards and Vapor Intrusion Screening Levels, as applicable. It is not anticipated that any soil sampling will be conducted once the RAP for soil is in place. Once the RAP is in place, Hess will only conduct additional soil sampling if appropriate and in accordance with applicable NJDEP regulations. A map depicting current Site features is included as **Figure 6**.

Hess is responsible for the investigation and remediation of the SWMU, Areas of Concern (AOCs), and Historic Spills (HS). The following is a brief summary of the Site SWMU, AOCs, and HS. Maps depicting the locations of the SWMU and AOCs are included as **Figures 4, 4.1, 4.2, 4.3, and 4.4**.

- SWMU Summary

- North Landfarm – The North Landfarm was a land treatment system that was permitted to treat American Petroleum Institute (API) separator sludge and leaded tank bottoms. The unit operated from 1975 to 1988, treating approximately 21 tons of hazardous waste. Soil samples were collected in 2002 and 2009 as part of landfarm closure activities. Exceedances of the NJ Soil Remediation Standards were detected in the soil samples for Volatile Organic Compounds (VOCs), metals, and petroleum hydrocarbons. To address the soil impacts, the remedial strategy will include both institutional and engineering controls consisting of a deed restriction, groundwater CEA and a cap. Seven permitted monitoring wells are currently sampled on a quarterly basis until the landfarm is officially closed. Post-closure groundwater monitoring requirements will be specified in the remedial action permit.
- South Landfarm – The South Landfarm was permitted to treat oily soils and sludges from the API separator, corrugated plate separator, recoverable oil tank bottoms, and petroleum product storage bottoms. The landfarm operated from 1975 to 1984. Soil samples were collected in 2002, 2003, and 2006 as part of landfarm closure activities. Exceedances of the NJ Soil Remediation Standards were detected in the soil samples for VOCs, metals, phenols, and petroleum hydrocarbons. To address the soil impacts, the remedial soil strategy will include both institutional and engineering controls consisting of a deed restriction, groundwater CEA, and a cap. Four permitted monitoring wells are currently sampled on a quarterly basis until the landfarm is officially closed. Post-closure groundwater monitoring requirements will be specified in the remedial action permit.

- No. 1 Landfarm – The No. 1 Landfarm was constructed in 1985 with a leachate collection system and underlying compacted clay liner designed to prevent any leachate discharges into the groundwater. The landfarm treated API separator sludge, heat exchanger bundle cleaning sludge, leaded tank bottoms, and TetraEthyl Lead (TEL) bottoms until February 2013. In 2013, once the landfarm became inactive, a NJDPES Permit (#NJG0225720) was obtained regarding the pumping of leachate from the landfarm. The leachate is treated via a bank of six particulate bag filters followed by metals treatment via two Metsorb filter canisters, with the final stage of treatment including activated carbon filtration prior to discharge to the Arthur Kill via the North drainage ditch. Six monitoring wells were initially utilized to assess groundwater conditions for the No. 1 Landfarm. However, the monitoring well network was expanded in October 2012 to include additional Site monitoring wells. The monitoring wells will be sampled on a quarterly basis until the landfarm is officially closed. In addition to the groundwater sampling requirements, there are also supplementary annual sampling requirements which include the collection of a leachate sample, collection of samples from the two landfarm lysimeters, and the collection of three soil samples from randomly installed soil cores. Soil samples were collected from 2001 through 2012 as part of permit requirements and landfarm closure activities. Exceedances of the NJ Soil Remediation Standards were detected in the soil samples for VOCs, SVOCs, and metals. To address the soil impacts, the remedial strategy will include both institutional and engineering controls consisting of a deed restriction, groundwater CEA, and a cap. Post-closure groundwater monitoring requirements will be specified in the remedial action permit.
- Aeration Basins – Three aeration basins were utilized for wastewater treatment between 1974 and 1985. The synthetically lined aeration basins were used for biological treatment of process wastewater and stormwater. The aeration basins were closed in accordance with a February 1987 Closure plan. The basins were filled and capped in 2014 with a one foot soil layer and six inches of top soil. Five monitoring wells are sampled annually to assess groundwater impacts attributed to the aeration basins.
- Former Underground Storage Tank (UST) Area – In 1986, a 500-gallon UST utilized for the temporary storage of water drained from adjacent aboveground bulk petroleum storage tanks was removed and impacted soil and groundwater encountered. The soil and groundwater investigation of the area is currently in process.
- Former Container Storage Area – The former container storage area (hazardous waste storage permit No.1225L1HP01) is located on the southwestern portion of the property between the Truck Loading Rack and the Detention Basin. This is the only RCRA regulated former container storage area on the Site. EPA Envirofacts database currently lists two RCRA regulated container storage areas; however, both areas refer to the same area (identified as the Former Container Storage Area, Container Storage Pad, Hazardous Waste Storage Area, and/or AOC 8). The permit for the waste storage pad expired on March 3, 1997. In early 1992, this area was proposed to be utilized as additional space for hazardous waste storage. Hess subsequently chose in 1996 not to renew the existing permit or to expand the area. The existing container storage pad was reported to be in good condition with no visible staining. Also, there are no reports of hazardous materials having been spilled on the pad and/or stored for greater than 90 days in the area. The

NJDEP granted closure for the existing hazardous waste storage area in a letter dated January 22, 1997, indicating that applicable closure requirements were met. Soil and groundwater impacts in this area of the Site have been extensively investigated as part of the investigation of the Former Container Storage Area (AOC 8), the Truck Loading Rack (AOC 10), and the Detention Basin (AOC 12). Both soil and groundwater impacts are present in the area. Additional surficial soil delineation is required to delineate PCB impacts detected over the NJ Non-Residential Soil Standard and will be proposed in either an AOC specific RIW or the Sitewide RIW. Once soil delineation is complete, remediation will consist of isolated excavations, installation of an engineering control, and establishment of institutional controls.

- AOC Summary

As part of the Site's ISRA reporting requirements, a Preliminary Assessment (PA) and Site Investigation (SI) was conducted and a PA/SI report submitted to the NJDEP in November 2015. The PA/SI identified 117 AOCs for the Site, of which 63 AOCs required additional investigation (**Figure 4**). A Case Inventory Document (CID) which summarizes all AOCs is included as **Attachment 1**.

- Historic Spills Summary

There have been 104 documented releases reported for the Site. A full list of spills is included as **Attachment 2**. Historic spills are being addressed as part of the investigation and remediation of Site AOCs that are co-located or adjacent to the historic spill locations. As part of site closure activities, all historic spills will be investigated and remediated (if necessary) and closed via a Response Action Outcome (RAO).

### **Definition of Environmental Indicators (for the RCRA Corrective Action)**

Environmental Indicators (EI) are measures being used by the RCRA Corrective Action program to go beyond programmatic activity measures (e.g., reports received and approved, etc.) to track changes in the quality of the environment. The two EI developed to-date indicate the quality of the environment in relation to current human exposures to contamination and the migration of contaminated groundwater. An EI for non-human (ecological) receptors is intended to be developed in the future.

### **Definition of "Current Human Exposures Under Control" EI**

A positive "Current Human Exposures Under Control" EI determination ("YE" status code) indicates that there are no "unacceptable" human exposures to "contamination" (i.e., contaminants in concentrations in excess of appropriate risk-based levels) that can be reasonably expected under current land- and groundwater-use conditions (for all "contamination" subject to RCRA corrective action at or from the identified facility (i.e., site-wide)).

### **Relationship of EI to Final Remedies**

While Final remedies remain the long-term objective of the RCRA Corrective Action program the EI are near term objectives which are currently being used as Program measures for the Government Performance and Results Act of 1993, GPRA). The "Current Human Exposures Under Control" EI are for reasonably expected human exposures under current land- and groundwater-use conditions ONLY, and

do not consider potential future land- or groundwater-use conditions or ecological receptors. The RCRA Corrective Action program's overall mission to protect human health and the environment requires that Final remedies address these issues (i.e., potential future human exposure scenarios, future land and groundwater uses, and ecological receptors).

### Duration / Applicability of EI Determinations

EI Determinations status codes should remain in RCRIS national database ONLY as long as they remain true (i.e., RCRIS status codes must be changed when the regulatory authorities become aware of contrary information).

2. Are groundwater, soil, surface water, sediments, or air **media** known or reasonably suspected to be **"contaminated"**<sup>1</sup> above appropriately protective risk-based "levels" (applicable promulgated standards, as well as other appropriate standards, guidelines, guidance, or criteria) from releases subject to RCRA Corrective Action (from SWMUs, RUs or AOCs)?

	<u>Yes</u>	<u>No</u>	<u>?</u>	<u>Rationale/Key Contaminants</u>
Groundwater	<u>X</u>			<u>VOCs, Metals, SVOCs, 1,4-dioxane, Isolated areas of LNAPL</u>
Air (indoors) <sup>2</sup>		<u>X</u>		
Surface Soil (e.g., <2 ft)	<u>X</u>			<u>VOCs, Metals, SVOCs, EPH</u>
Surface Water	<u>X</u>			<u>Metals, SVOCs</u>
Sediment	<u>X</u>			<u>Exceed Ecological Screening Criteria</u>
Subsurface Soil (e.g., >2 ft)	<u>X</u>			<u>VOCs, Metals, EPH, SVOCs</u>
Air (outdoors)		<u>X</u>		

\_\_\_\_\_ If no (for all media) – skip to #6, and enter "YE," status code after providing or citing appropriate "levels," and referencing sufficient supporting documentation demonstrating that these "levels" are not exceeded.

X If yes (for any media) – continue after identifying key contaminants in each "contaminated" medium, citing appropriate "levels" (or provide an explanation for the determination that the medium could pose an unacceptable risk) and referencing supporting documentation.

\_\_\_\_\_ If unknown (for any media) – skip to #6 and enter "IN" status code.

Rationale and Reference(s):

### Analytical Results Summary

An extensive amount of analytical data has been generated as part of facility operations and from the closure of the refinery and investigation of the facility. Historic data has been considered in the preparation of this report. However, the most recent data has been the main focus of the evaluation in that it offers the most accurate picture of current conditions. Currently, quarterly groundwater sampling

is conducted for the three landfarms and annual groundwater sampling is conducted to address the remaining Site AOCs.

Therefore, the main analytical results being evaluated include the following: 2020 groundwater gauging results, 2019 annual groundwater sampling results, 2020 quarterly landfarm groundwater sampling results, 2010, 2016 and 2020 vapor intrusion investigation results, the 2014-2015 soil analytical results collected as part of the Site Investigation, and 2018-2019 AOC specific Remedial Investigation results for AOC 10 – Truck Loading Rack and AOC 12 – Detention Basin and Smith Creek.

Delineation is not complete for soil or groundwater at the Site. Several AOC specific RIW reports are in progress and will be submitted, which will include the necessary tasks to complete delineation.

Analytical results have been evaluated in relation to the NJ Soil Remediation Standards (NJSRS), NJ Default Impact to Groundwater Criteria (IGW), NJ Non-Residential Indoor Air Screening Levels (NRIASL), NJ Groundwater Quality Standards (GWQS), NJ Surface Water Quality Standards – Human Health (NJSWQS), and NJ Ecological Sediment Screening Criteria.

### **LNAPL**

Isolated areas of LNAPL on the Site have decreased significantly since active product recovery began in November 1998. As LNAPL levels decreased in Site monitoring wells, LNAPL product recovery also decreased. Therefore, the LNAPL pumping events were discontinued and only passive recovery methods are utilized currently. Site monitoring wells are gauged on a monthly basis. Interim Remedial Measures (IRM) implemented to date have focused on LNAPL stabilization and recovery.

Groundwater gauging is currently conducted monthly at thirty (30) monitoring wells (PL-1RR, PL-2, PL-3R, PL-4RR, PL-5R, PL-6RR, PL-7, PL-8R, PL-9R, TF-1, TF-2, TF-3, TM-6R, TM-7, TR-1R, TR-2R, TR-3RR, TR-4R, TR-4D, TR-4DD, TR-5, TR-6, TR-6D, FA-1, FA-2, FA-3, FA-4, FA-5, FA-6, and FA-7), two (2) recovery sumps (TR-Sump-1, TR-Sump-2), the interceptor trench, and six (6) surface water gauges (DB-SW, L1-SW, LN-SW, SC-SG-1, SC-SG-1A, SC-SG-2). Historically, only twenty-three (23) monitoring wells were gauged on a monthly basis. Seven (7) new monitoring wells, that were installed as part of the investigation of AOC 103 – Fire Pits / Fire Training Area, have been included in the group of wells gauged on a monthly basis.

During the June 2020 event, LNAPL was measured in monitoring well PL-5R (0.2ft) and the interceptor trench. Currently, only passive LNAPL recovery methods are being utilized. Absorbent booms are placed in impacted wells and replaced as necessary. All spent booms are placed in a 55-gallon drum staged on-site. Once at capacity, the drum is removed from the HC-PR site and disposed of at a licensed waste disposal facility.

See Attachment 3 which includes a table (**Table 3-1**) depicting historic and current LNAPL levels. Groundwater gauging results are included as **Table 3-2**. A Remedial Investigation Workplan is currently in process to address all the Tank Fields on Site. Delineation of any observed LNAPL in monitoring wells within or adjacent to the Tank Fields will be proposed in the Tank Fields RIW. The CA 725 will be updated to include LNAPL extent and recovery as the various Remedial Investigations to be conducted across the Site are completed.

## Soil

As part of investigation activities for various AOCs, multiple soil samples have been collected at the Site. Compounds associated with historic operations and compounds typically associated with historic fill were detected in soil samples at concentrations that exceed the NJSRS. These compounds include VOCs, BNs, metals, and petroleum hydrocarbons (EPH).

Several AOC specific Remedial Investigation Workplan (RIW) reports are in process. These RIW reports recommend additional soil samples to delineate known impacted areas of soil and to identify any source material that is continuing to impact Site groundwater. Analytical results, both figures and tables, obtained from the 2014-2015 SI are included as **Attachment 4**. In addition, analytical results from the 2018 and 2019 RI activities conducted to address AOC 10 – Truck Loading Rack are also included in **Attachment 4**.

The following is a brief summary of the compounds and concentrations detected in subsurface soil at the Site. Figures depicting both surficial and subsurface soil impacts are included in **Attachment 4**.

COMPOUND	CAS NUMBER	NJDEP Non-Res Soil Standard	MAXIMUM CONCENTRATION (PPM)
Total EPH	CASID30101	Calculated standard	62,500
<b>Volatile Organic Compounds</b>			
Benzene	71-43-2	5	31.4
Trichloroethene	79-01-6	10	10.2
Tetrachloroethane	127-18-4	1500	1590
1,2,4-Trichlorobenzene	120-82-1	820	2510
1,4-Dichlorobenzene	92-87-5	13	567
<b>Base Neutral Compounds</b>			
Benzo(a)pyrene	50-32-8	2	3.7
Naphthalene	91-20-3	17	194
<b>Metals</b>			
Arsenic	7440-38-2	19	232
Lead	7439-92-1	800	1070



### Surficial Soil

Surficial soil analytical results from 1993 through 2019 were reviewed for the Site. The following table summarizes the maximum concentrations of compounds detected in comparison to the NJ Non-Residential Soil Remediation Standard in surficial soil (0 -2 feet) at the Site. As additional analytical data is generated as part of Site investigation activities, an evaluation will be made regarding the remedy for addressing the surficial soil impacts. The remedial strategy will likely include a combination of isolated excavations, treatment, and the use of engineering and institutional controls. A figure depicting surficial soil exceedances and surface composition is included in **Attachment 4**.

COMPOUND	NON-RES NJSRS	SURFICIAL SOIL MAXIMUM CONCENTRATION (PPM)
EPH	Calculated	65519
Benzene	5	185
1,4-Dichlorobenzene	13	567
Benzo(a)pyrene	2	8.6
Naphthalene	17	194
PCBs	1	36.6
Arsenic	19	129
Acrolein	1	240
Acrylonitrile	3	240
Carbon Tetrachloride	4	6.7
Chloroform	2	3.8
1,2-Dichloroethane	3	6.7
1,2-Dichloropropane	5	14
Cis-1,3-Dichloropropylene	7	12
1,1,2,2-Tetrachloroethane	3	16
1,1,2-Trichloroethene	6	12
Vinyl Chloride	2	24
Trans-1,3-Dichloropropylene	7	24
Benzidine	0.7	39
Bis(2-Chloroethyl)Ether	2	5.1
3,3-Dichlorobenzidine	4	14.8
2,4-Dinitrotouene	3	5.1
1,2-Diphenylhydrazine	2	9
Hexachlorobenzene	1	1.7
N-Nitroso-Di-n-propylamine	0.3	9

### Historic Fill Impacts

As presented in the 2015 Site Investigation Report, the property was developed with the placement of anthropogenically impacted soil (originating from off-site locations) upon topographically lower land, which was primarily wetlands. The source locations are for the most part unknown, although dredged material from the adjacent Arthur Kill Shipping Channel has been historically placed upon the site. The NJDEP has acknowledged the introduction of off-site materials onto the site in its state database.

The NJDEP has recognized and acknowledged that two contaminant suites are inherent with historic fill material. The suites are metals and base neutrals, especially its sub-set PAHs. Historic soil and groundwater sampling have documented a presence of metals, in many instances at levels above



applicable SRS and GWQS. With the possible exception of lead, the other metals that have been detected are not attributed to past on-site operations and are likely associated with the underlying historic fill material. To a lesser extent, BN and PAHs have been detected site-wide, with particular sampling locations also having concentrations above applicable SRS and GWQS. Although associated with historic fill material, it is possible that the BN and PAH occurrences could also be associated with on-site operations. Evidence that suggests a fill material origin for elevated BN and PAH levels includes contamination encountered at depth, the lack of a vertical contaminant pathway, and the samples collected from the documented fill material stratum, all of which are documented in the soil logs. Further supporting evidence includes the random occurrence of PCB compounds with the metals and/or BN compounds at non-electrical operation locations. An example of a location identified as having fill material contaminants is evidenced by the soil and groundwater sampling data associated with the former vacant rail lines (Vacant Land North/AOC-63). This area was developed to accommodate railroad use for the adjacent off-site Coal Docks and was never utilized by Hess for its operations. Regardless of the origin of soil impacts on the Site, soil impacts will be addressed during Site remediation through a combination of isolated excavations, in situ soil treatment, and the use of engineering and institutional controls.

### **Groundwater**

According to the NJ GeoWeb GIS system, the Site hydrology consists of the Potomac-Raritan-Magothy, Brunswick, and Lockatong aquifers which are NJDEP Class 2A aquifers. The majority of the Site is underlain by the Potomac-Raritan Magothy aquifer. The most north/northeast portions of the Site, located near the intersection of Cliff Road and the Port Reading Railroad, are underlain by the Brunswick and Lockatong aquifers.

A site-wide groundwater gauging event was conducted in 2020. Shallow groundwater flow was determined to be towards the Detention Basin in the northern and western portions of the site, to the east and towards the Arthur Kill in the central portion of the site, and away from the Detention Basin in the southern portion of the site. This is generally consistent with previous events.

Groundwater flow will continue to be monitored as part of future gauging events. Groundwater gauging tables are included in **Attachment 3**. Groundwater elevation data indicates groundwater flow in the shallow and intermediate aquifers to be toward the south and east toward the Smith Creek. Deep groundwater flow appears to be towards the southeast. Groundwater contour maps are included in **Attachment 5**.

During the Second and Third Quarters 2014, the qualitative portion of the Facility Tidal Study was completed, utilizing a total of twenty-five wells and three surface water gauges. These were gauged at regular intervals and compared with regional surface water tidal fluctuations. Several wells located within or near the filled Smith Creek stream channels were included to determine if a greater extent of tidal influence existed. Gauging data is included as Table 3-2. Predicted, preliminary, and verified tide data from nearby National Oceanographic and Atmospheric Administration (NOAA) tide stations at Bergen Point West Reach (NJ Station ID 8519483) and Sandy Hook (NJ Station 8531680) were evaluated for accuracy and the tidal predictions compared to the predictions for the Woodbridge Creek 0.8 Nautical Miles above Entrance (NJ Station ID 8531156). Tidal data was compared to the recorded depths to water in the monitoring well.

In an effort to better understand site hydrogeology, and to aid in contaminant modeling, falling head and rising head slug testing was completed at eight monitoring wells throughout the site on December 30, 2014. The Bouwer-Rice Method was utilized to determine the k value of the unconfined aquifer. The k value ranged from 0.874 feet per day to 35.73 feet per day.

Based on the available well gauging data, groundwater in shallow, intermediate and deep monitoring wells, appear to be influenced tidally. An updated Tidal Study is currently being completed on the Site (August 2020) and the CA725 will be updated based on observations from the 2020 Tidal Study.

Groundwater at the Site is impacted from historic operations and releases as well as from the presence of historic fill on the Site. Groundwater is impacted with metals, Volatile Organic Compounds (VOCs), Base-Neutrals (BNs), and polyfluoroalkyl substances (PFAS). Site-wide historic fill material is the likely origin for the metals, and potentially the BN/PAH impacts detected in the groundwater. Groundwater contaminant Isopleth maps are included in **Attachment 5**.

#### CVOCs

Chlorinated VOCs (CVOCs) have been detected in the groundwater beneath the site. The major CVOC occurrence is associated with the Administration Building (AOC-11a). The building has a pre-Hess origin and was formerly occupied by the Petroleum Solvents Corporation between 1947 and 1957. The CVOC suite ranges from the primary compound PCE through the complete ethene transformation pathway to vinyl chloride. The contaminant footprint trends southward beneath the Detention Basin. A secondary CVOC plume with the primary component of 1,1,1-trichloroethane (TCA) was also detected. The TCA groundwater plume extends northward.

#### BTEX

Benzene, toluene, ethylbenzene and xylenes (BTEX), compounds that are commonly associated with petroleum products, have also been detected in Site groundwater. Methyl Tert Butyl Ether (MTBE) and Tertiary Butyl A (TBA), commonly associated with gasoline, have also been detected in the Site groundwater. In general, the BTEX, MTBE, and TBA occurrences coincide with documented historic spill locations, former petroleum refining operations, consolidated refinery waste, and product storage.

#### PFAS

Aqueous Film Forming Foams (AFFF) were developed and began being used as fire suppressants for fire training/fire-fighting at military bases, airports, and oil refineries/terminals in the 1960s. AFFFs contain a mixture of PFAS, which have been identified as emerging contaminants of concern. Based on a review of historic aerials and input from the former Hess Fire Chief and former Health and Safety Specialist, the northeast corner of the Site was occupied by fire pits that were utilized for the training of fire and safety personnel from approximately the 1960's to the 1980's. Fires were set using different accelerants in order to determine the correct fire suppressant to use.

In January 2020, seven (7) monitoring wells were installed in the former fire training area (AOC 103) located within the northeastern corner of the Site. The monitoring wells were sampled for PFAS utilizing modified EPA method 537. PFAS were detected at concentrations exceeding applicable standards in the groundwater samples collected from all monitoring wells. Based on the analytical results, additional groundwater delineation is required by the NJDEP and EPA to address PFAS impacts. The following table summarizes the results.

Client Sample ID:		NJ Groundwater Criteria (NJAC 7:9C 9/4/18) <sup>1</sup>	NJ Interim Groundwater Criteria (NJAC 7:9C 1/17/19) <sup>2</sup>	FA-1 JD2525-1A 1/29/2020	FA-2 JD2525-2A 1/29/2020	FA-3 JD2525-3A 1/29/2020	FA-4 JD2525-4A 1/29/2020	FA-5 JD2525-5A 1/29/2020	FA-6 JD2525-6A 1/29/2020	FA-7 JD2525-7A 1/29/2020	FB JD2525-8A 1/29/2020
Lab Sample ID:											
Date Sampled:											
Matrix:				Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Field Blank Water
<b>MS Semi-volatiles (EPA 537M BY ID)</b>											
Perfluorohexanoic acid	ug/l	-	-	3.79	0.0095	0.0445	0.731	0.0165	1.91	0.112	ND (0.00086)
Perfluoroheptanoic acid	ug/l	-	-	1.82	0.0049	0.0091	0.1	0.0088	0.224	0.0111	ND (0.00086)
Perfluorooctanoic acid	ug/l	-	0.01	<b>0.89</b>	0.004	<b>0.0169</b>	<b>0.221</b>	0.0087	<b>0.276</b>	<b>0.0189</b>	ND (0.00086)
Perfluorononanoic acid	ug/l	0.013	-	ND (0.0086)	0.0035	0.0062	ND (0.0086)	<b>0.0274 J</b>	ND (0.086)	0.004	ND (0.00086)
Perfluorodecanoic acid	ug/l	-	-	ND (0.0086)	0.0029 J	0.0044	ND (0.0086)	0.0036	ND (0.0086)	0.0029 J	ND (0.00086)
Perfluoroundecanoic acid	ug/l	-	-	ND (0.0086)	ND (0.0086)	ND (0.0043)	ND (0.0086)	ND (0.0086)	0.176	0.0061	ND (0.00086)
Perfluorododecanoic acid	ug/l	-	-	ND (0.013)	ND (0.0013)	ND (0.0065)	ND (0.13)	ND (0.013)	ND (0.013)	ND (0.0013)	ND (0.0013)
Perfluorotridecanoic acid	ug/l	-	-	ND (0.0086)	ND (0.00086)	ND (0.0043)	ND (0.0086)	ND (0.00086)	ND (0.0086)	ND (0.00086)	ND (0.00086)
Perfluorotetradecanoic acid	ug/l	-	-	ND (0.0086)	ND (0.00086)	ND (0.0043)	ND (0.0086)	ND (0.00086)	ND (0.0086)	ND (0.00086)	ND (0.00086)
Perfluorobutanesulfonic acid	ug/l	-	-	2.76	0.0047	0.025	0.437	0.0083	1.02	0.088	ND (0.00086)
Perfluorohexanesulfonic acid	ug/l	-	-	58.4	0.0414	0.253	5.73	0.115	7.29	0.79	ND (0.00086)
Perfluorooctanesulfonic acid	ug/l	-	0.01	<b>4.45</b>	<b>0.17</b>	<b>0.868</b>	<b>33.8</b>	<b>0.421</b>	<b>61.7</b>	<b>1.96</b>	ND (0.0013)
MeFOSAA	ug/l	-	-	ND (0.034)	ND (0.0034)	ND (0.0034)	ND (0.034)	ND (0.034)	ND (0.034)	ND (0.0034)	ND (0.0034)
EtFOSAA	ug/l	-	-	ND (0.034)	ND (0.0034)	ND (0.0034)	ND (0.034)	ND (0.034)	ND (0.034)	ND (0.0034)	ND (0.0034)

### Off-Site Groundwater Investigation

Four (4) clusters of off-site monitoring wells were installed on the adjacent PSEG property in November 2019 as part of the investigation of AOC 10 and AOC 12. Low levels of several VOCs were detected in the groundwater samples collected from the off-site wells at concentrations slightly exceeding the NJ GWQS. Therefore, additional off-site groundwater delineation is necessary. Additional monitoring wells are recommended and are being proposed in Supplemental RIWs for AOC 10 – Truck Loading Rack and AOC 12 – Detention Basin and Smith Creek. The RIWs are currently being prepared and are due for submittal in the fall of 2020.

### Groundwater Delineation

Groundwater delineation is not complete at the Site for multiple AOCs. Several AOC specific RIWs were submitted in the Second and Third Quarters of 2020. However, based upon subsequent discussions with the NJDEP and USEPA regarding supplying additional information, the RIWs are currently being revised to incorporate the requested additional information. The following AOC specific RIWs are currently being revised:

- AOC 10 – Truck Loading Rack Area & AOC 57 – Day Tankfield
- AOC 12 – Smith Creek & Detention Basin

### Former Refining Area Remediation Management Unit

- AOC-9 Alkylation Unit (Sewer Line)
- AOC-18 Dimersol Unit
- AOC-20a T1600-A and T-1600B Transformers

- AOC-20b T510-A and T510-B Transformers
- AOC-25 X-1950A and X-1950B (Alkylation Neutralization Basin)
- AOC-26 D-1104 (MEA Sump)
- AOC-27 EADC Sump
- AOC-30 Sulfur Pit
- AOC-32 X-1951 (SRU Neutralization Basin)
- AOC-39 EADC Truck Unloading Area
- AOC- 40 Fresh Acid Unloading Area
- AOC-45 Former Sulfur Recovery Unit Truck Loading Rack
- AOC-58 Former Chemical Storage Area
- AOC-60 Avenue B Tank Field
- AOC-80 Former Crude Topping Unit
- AOC-88 Compressor Building
- AOC-89 Cracking Tower
- AOC-92 TK-701A and TK-701B
- AOC-117 Diesel Powered Emergency Generator - Millwright's Shop

#### Former Marine Loading Dock Area

- AOC 16b – Marine Terminal Loading Rack Area
- AOC 63 – Former Rail Lines (Vacant Land North)
- AOC 85 – Marine VRU/TK-4701 and TK-4801
- AOC 100 – Laydown Yard
- AOC 102 – Vacant Land (South)
- AOC 116 – Diesel Powered Emergency Generator – South Dock

#### Tankfields

- AOC 6 - HSWA UST,
- AOC 14a - First Tank Field,
- AOC 15a, 15b, & 15c - Former UST Areas,
- AOC 37 - No. 2 Oil Detergent and Additive Truck Unloading Area,
- AOC 53 - Second Tank Field,
- AOC 54 - Third Tank Field,
- AOC 55 - Fourth Tank Field,
- AOC 56 - Second Reserve Tank Field,
- AOC 113 - Second Reserve Tank Field Oil/Water Separator

#### 2019 Annual Groundwater Sampling Event

The 2019 groundwater analytical results, figures and tables, as well as groundwater contour maps are included as **Attachment 5**. The following is a brief summary of the maximum concentrations of COCs detected during the 2019 groundwater sampling event.

COMPOUND	CAS NUMBER	GWQS	Maximum Concentration (ppb) 2019 Annual GW Event
<b>Volatile Organic Compounds</b>			
Benzene	71-43-2	1	3610
Tetrachloroethane	127-18-4	1	628
Trichloroethene	79-01-6	1	4880
Ethylbenzene	100-41-4	700	6640
Toluene	108-88-3	600	606
Total xylenes	1330-20-7	1000	19100
1,2-Dichlorobenzene	95-50-1	600	4570
1,3-Dichlorobenzene	541-73-1	600	999
1,4-Dichlorobenzene	106-46-7	75	5780
1,1-Dichloroethene	75-34-3	50	12500
Cis-1,2-Dichloroethene	156-59-2	70	2670
1,1-Dichloroethane	75-34-3	50	1200
1,2-Dichloroethane	107-06-2	2	30.2
1,2-Dichloropropane	78-87-5	1	63.9
Vinyl chloride	75-01-4	1	117
1,1,1-Trichloroethane	71-55-6	30	14300
1,1,2-Trichloroethane	79-00-5	3	24.5
1,2,4-Trichlorobenzene	120-82-1	9	484
MTBE	1634-04-4	70	133000
Tert Butyl Alcohol	75-65-0	100	75700
Chlorobenzene	108-90-7	50	3320
<b>Semi-Volatile Organic Compounds</b>			
Benzo(a)anthracene	56-55-3	0.1	1.12
Benzo(a)pyrene	50-32-8	0.1	0.5
Benzo(b)fluoranthene	205-99-2	0.2	0.683
Indeno(1,2,3-cd)pyrene	193-39-5	0.2	0.213
1,4-Dioxane	123-91-1	0.4	4180
<b>Metals</b>			
Arsenic	7440-38-2	3	104
Lead	7439-92-1	5	119

### **Vapor Intrusion**

Due to the presence of VOCs in the groundwater at the Site in the vicinity of the administration building, vapor intrusion investigations were conducted in 2010, 2016, and 2020. The following sections summarize the VI investigation activities.

#### **2010 Vapor Intrusion Investigation Summary**

In November 2010, two sub-slab soil gas samples, four indoor air samples, and two ambient air samples were collected as part of the vapor intrusion investigation for the administration building. Chloroform and 1,1-Dichloroethane were detected in one sub slab sample at concentrations which exceeded the non-residential soil gas screening levels. No compounds were detected in the indoor air or ambient air samples at concentrations exceeding the NRIASL

The 2010 vapor intrusion analytical results, figures and tables, are included as **Attachment 6**.

### 2016 Vapor Intrusion Sampling Summary

Small basement areas are present under the northern and southern ends of the Administration Building. Subslab soil gas samples were collected strictly from the northern end of the building since the basement located on the southern side was flooded at the time of sampling. It is our understanding that there are no basements/crawlspace under the middle portion of the building.

In January 2016, two (2) sub-slab soil gas samples and two (2) indoor air samples were collected and analyzed. The indoor air samples were collected in the northern and southern basements beneath the building. No compounds were detected over the NJ Non-Residential Soil Gas Screening Levels. The compound 1,2 Dibromoethane is highlighted on Table 6-1 because the laboratory method detection limit of 40 ug/m<sup>3</sup> exceeds the standard of 38 ug/m<sup>3</sup>. However, this compound is not a contaminant of concern for the Administration Building. This is not a compound of concern because 1,2 Dibromoethane was not detected in the indoor air or in groundwater samples collected as part of the investigation of the administration building. No compounds were detected over the NRIASL in the two (2) indoor air samples collected from the basement.

The 2016 vapor intrusion analytical results, figures and tables, are included as **Attachment 6**.

### 2020 Vapor Intrusion Sampling Summary

Due to the age of the building, as-built diagrams could not be located for the administration building to evaluate potential preferential vapor pathways in the building. Therefore, in August 2020, five (5) indoor air samples and one (1) ambient air sample were collected and analyzed for VOCs utilizing EPA TO-15 method. The indoor air samples were collected on the first floor of the administration building. A figure depicting the sample locations is included in **Attachment 6**.

The analytical results for the indoor air and the ambient air samples were all below the NRIASL.

The 2020 vapor intrusion analytical results, figures and tables, are included as **Attachment 6**.

Therefore, based on both historic and the current sampling, vapor intrusion is currently not an issue at the Site.

As additional soil analytical results, groundwater analytical results become available, further evaluations will be made as to whether additional sub-slab or indoor air sampling will be conducted.

### Surface Water and Sediment

The following is a brief description of the two surface water bodies currently and historically present on the Site; Smith Creek and the Detention Basin. HC-PR began operations in 1958. Based on a review of historic aerial photographs, it appears that the northern portion of Smith Creek and its tributaries were filled between 1954 and 1957. By 1963, only the southern portion of Smith Creek was present on the Site. Northern portions of the Creek were filled-in, excluding the northern drainage ditch. The detention basin present on the Site was created between 1966 and 1969. In 1972, Smith Creek appears to have been backfilled and does not appear on the aerial photograph and the detention basin is no longer directly connected to the off-site portion of Smith Creek. The detention basin has historically been utilized as a storm water retention pond to reduce runoff to nearby surface waters.



Based on information provided by NJDEP's Geoweb, Smith Creek is approximately 125-175 feet wide and approximately 5,000 feet long from where the creek begins until it eventually discharges into the Arthur Kill. Smith Creek is classified as a FW2-NT/SE3 waterway. The depth of Smith Creek is approximately 4 feet deep at high tide. Directly to the north of Smith Creek is a pond, also approximately 4 to 5 feet deep.

Currently, the closest off-sites surface water bodies are the Arthur Kill and Smith Creek.

An investigation of sediment and surface water was conducted for the on-site Detention Basin and off-site Smith Creek Pond and Smith Creek in 2018 and 2019. The following is a summary of the investigation results.

### Surface Water

#### Detention Basin

In November 2018, surface water samples were collected from 12 locations in the detention basin at 3 depths (below the surface, middle of the water column, and base of water column). Surface water sample locations were selected biased toward inflows, outflows, or areas of observable impacts.

No VOCs or SVOCs were detected in the surface water samples collected from the detention basin. Arsenic, lead, and manganese were detected in one surface water sample at concentrations which exceed the NJ SWQS for human health. There were no exceedances in the remaining 35 surface water samples collected from the detention basin.

#### Smith Creek and Smith Creek Pond

In February and March 2019, surface water samples were collected from two locations in Smith Creek Pond and 21 locations in Smith Creek at three (3) depths (surface, middle, and bottom). Surface water sample locations in Smith Creek included nearshore locations and in the center of the waterway. Surface water samples could only be collected at high tide due to safety and access issues.

No VOCs or metals were detected at concentrations exceeding the NJ SWQS in the surface water samples collected from Smith Creek and Smith Creek pond. Only one SVOC, bis(2-ethylhexyl)phthalate, a common laboratory contaminant, was detected over the NJ SWQS in two (2) surface water samples.

Summary tables and figures depicting the surface water investigation results are included in **Attachment 7**.

#### Arthur Kill

The Arthur Kill is classified as a SE2 waterway. Surface water samples were not collected in the Arthur Kill. Monitoring wells TL-1, TL-2, TL-3, PER-7, and PER-8 are the wells located in the closest proximity to the Arthur Kill. Groundwater concentrations for arsenic, benzo(a)anthracene, and manganese exceed the NJ SWQS. Based on the surface water sample results collected from the Detention Basin and Smith Creek, it is unlikely that site operations or releases have impacted the Arthur Kill. However, additional surface water and sediment sampling will be proposed in the Arthur Kill pursuant to NJDEP and USEPA recommendations. Several RIWs are currently in process and include recommendations for additional sampling in the Arthur Kill. The CA725 will be updated once the supplemental RI work is completed.

## Sediment

In November 2018, sediment samples were collected from 12 locations at the detention basin at multiple depths. These locations were selected based on the potential effects from historic spills, overland flow, and diffuse groundwater discharges. In February and March 2019, sediment samples were collected from 21 locations in Smith Creek and 2 locations in Smith Creek Pond. Sediment sample results were compared to the NJ Ecological Screening Criteria (ESC). Various VOCs, SVOCs, and metals had concentrations which exceeded the applicable ESC. However, based on the surface water results, low level sediment impacts are not acting as a source of surface water contamination.

Summary tables and figures depicting the sediment investigation results are included in **Attachment 7**.

### Footnotes:

<sup>1</sup> “Contamination” and “contaminated” describes media containing contaminants (in any form, NAPL and/or dissolved, vapors, or solids, that are subject to RCRA) in concentrations in excess of appropriately protective risk-based “levels” (for the media, that identify risks within the acceptable risk range).

<sup>2</sup> Recent evidence (from the Colorado Dept. of Public Health and Environment, and others) suggest that unacceptable indoor air concentrations are more common in structures above groundwater with volatile contaminants than previously believed. This is a rapidly developing field and reviewers are encouraged to look to the latest guidance for the appropriate methods and scale of demonstration necessary to be reasonably certain that indoor air (in structures located above (and adjacent to) groundwater with volatile contaminants) does not present unacceptable risks.



- Are there **complete pathways** between “contamination” and human receptors such that exposures can be reasonably expected under the current (land- and groundwater-use) conditions?

Summary Exposure Pathway Evaluation Table

Potential **Human Receptors** (Under Current Conditions)

<b><u>Contaminated Media</u></b>	Residents	Workers	Day-Care	Construction	Trespassers	Recreation	Food <sup>3</sup>
Groundwater	<u>No</u>	<u>No</u>	<u>No</u>	<u>Yes</u>			<u>No</u>
Air (indoors)	<u></u>	<u>No</u>	<u></u>	<u>No</u>	<u>No</u>		
Soil (surface, e.g., <2 ft)	<u></u>	<u>No</u>	<u></u>	<u>Yes</u>	<u>No</u>	<u>No</u>	<u>No</u>
Surface Water	<u>No</u>	<u>No</u>	<u>No</u>	<u>Yes</u>	<u>No</u>	<u>No</u>	<u></u>
Sediment	<u>No</u>	<u>No</u>	<u>No</u>	<u>No</u>	<u>No</u>	<u>No</u>	<u></u>
Soil (subsurface e.g., >2 ft)				<u>Yes</u>			<u>No</u>
Air (outdoors)	<u></u>	<u>No</u>	<u></u>	<u>No</u>	<u></u>		

Instructions for Summary Exposure Pathway Evaluation Table:

- Strike-out specific Media including Human Receptors’ spaces for Media which are not “contaminated”) as identified in #2 above.
- enter “yes” or “no” for potential “completeness” under each “Contaminated” Media – Human Receptor combination (Pathway).

Note: In order to focus the evaluation to the most probable combinations some potential “Contaminated” Media - Human Receptor combinations (Pathways) do not have check spaces (“\_\_\_”). While these combinations may not be probable in most situations they may be possible in some settings and should be added as necessary.

_____	If no (pathways are not complete for any contaminated media-receptor combination) – skip to #6, and enter “YE” status code, after explaining and/or referencing condition(s) in-place, whether natural or man-made, preventing a complete exposure pathway from each contaminated medium (e.g. use optional <u>Pathway Evaluation Work Sheet</u> to analyze major pathways).
<u>      X      </u>	If yes (pathways are complete for any “Contaminated” Media – Human Receptor combination) – continue after providing supporting explanation.
_____	If unknown (for any “Contaminated” Media – Human Receptor combination) – skip to #6 and enter “IN” status code

#### Rationale and Reference(s):

Groundwater and soil are impacted from former operations, historic releases, and the presence of historic fill. Surface water samples were collected from the Site detention basin and metals were detected in only one sample at concentrations in excess of NJSWQS. The remaining 35 surface water samples collected from the detention basin were below the NJSWQS. All surface water samples collected from Smith Creek Pond and Smith Creek were below NJSWQS. Pathways have been evaluated for all known contaminated media and a determination made whether there is in fact a complete pathway from the contamination to a human receptor.

#### Groundwater

Possible pathways for impacted groundwater to affect a human receptor would be through ingestion or through an indirect pathway such as ingestion of fish/shellfish obtained from adjacent surface water bodies (addressed in surface water section below). Regarding the ingestion pathway, the closest potable well is located approximately 3,200 feet west of the Site. The Bowtie pool has been permanently closed and the area slated for redevelopment, so the pool is no longer a potential receptor. A site visit was conducted to determine the status of the Bowtie pool and the pool is no longer present. Photographs of the current status of the pool are included in **Attachment 8**. Another possible exposure pathway for impacted groundwater is through direct contact. The only potential receptors who will have direct contact with Site groundwater are remedial contractors/consultants and construction workers.

#### Soil

Soil is impacted at the Site at levels less than two feet below the surface, as well as at depth. The only pathway for exposure to impacted soil would be through direct contact or inhalation. A figure depicting known soil impacts and current surface composition is included in **Attachment 4**. Based on this figure, there are areas of surficial impacts in several areas of the Site. However, most of the surficial impacts are located in tankfields or the landfarms which are restricted environments and there is no potential to come into direct contact with the surface impacts. However, there are surficial impacts in the former refinery

area which is exposed soil. The former refinery area is located in the main terminal area and can only be accessed by checking in with both the entrance guard and security tower. Therefore, only Site workers could potentially encounter the surficial impacts located in the former refinery area. Pending completion of the soil investigation and remediation in this area, Hess will issue a notification to Buckeye to ensure that all Buckeye personnel are aware of the surficial soil impacts in the area and that proper PPE is worn when working in the area.

#### Surface Water

There is one surface water body (detention basin) located on-site and the two (2) closest off-site surface water bodies are Smith Creek and the Arthur Kill. As summarized above, surface water samples were collected in both the onsite detention basin and adjacent Smith Creek and Smith Creek Pond. Only one surface water sample collected from the Site detention basin had metals concentrations above applicable standards. Site workers have minimal contact with the detention basin. Based on the level of expected contact and isolated impacts detected (one sample location), there is not an expected exposure pathway. The remaining surface water samples collected from the detention basin, Smith Creek Pond, and Smith Creek were all below NJSWQS. Smith Creek is classified as a FW2-NT/SE3 waterway. The Arthur Kill is classified as a SE2 waterway. This means that both waterways are designated for secondary contact recreational use, which means the potential for immersion or ingestion is low. In addition, both waterways have fish consumption advisories in place. Therefore, based on the analytical data, existing water classifications, and controls already in place; there is no potential exposure pathway.

The following fish consumption advisories are currently in place for the Arthur Kill and Smith Creek:

Species	General Population (2, 3)	High Risk Individual (2,3)
Blue Crab	Do not eat or harvest (5)	Do not eat or harvest (5)
Striped Bass	4 meals per year	Do not eat
American Eel	4 meals per year	Do not eat
White Perch	4 meals per year	Do not eat
Atlantic Needlefish (6)	1 meal per month	Do not eat
Rainbow Smelt (6)	1 meal per month	Do not eat
Gizzard Shad (6)	Do not eat	Do not eat
Bluefish	1 meal per month	Do not eat
Summer Flounder (Fluke)	1 meal per month	Do not eat
White Catfish	1 meal per year	Do not eat

(1) High-risk individuals include infants, children, pregnant women, nursing mothers and women of childbearing age.

(2) One meal is defined as an eight-ounce serving

(3) Eat only the fillet portions of the fish. Use proper trimming techniques to remove fat, and cooking methods that allow juices to drain from the fish (e.g., baking, broiling, frying, grilling, and steaming). See text for full description.

(4) Sunfish includes bluegill, pumpkinseed, and redbreast sunfish.

(5) No harvest means no taking or attempting to take any blue crabs from these waters.

(6) Based on New York advisories

Photographs of the signage along Smith Creek are included in **Attachment 8**.

<sup>3</sup>Indirect Pathway/Receptor (e.g., vegetables, fruits, crops, meat and dairy products, fish, shellfish, etc.)

4. Can the **exposures** from any of the complete pathways identified in #3 be reasonably expected to be “**significant**”<sup>4</sup> (i.e., potentially “unacceptable” because exposures can be reasonably expected to be: 1) greater in magnitude (intensity, frequency and/or duration) than assumed in the derivation of the acceptable “levels” (used to identify the “contamination”); or 2) the combination of exposure magnitude (perhaps even though low) and contaminant concentrations (which may be substantially above the acceptable “levels”) could result in greater than acceptable risks)?

<u>      X      </u>	If no (exposures cannot be reasonably expected to be significant (i.e., potentially “unacceptable”) for any complete exposure pathway) – skip to #6 and enter “YE” status code after explaining and/or referencing documentation justifying why the exposures (from each of the complete pathways) to “contamination” (identified in #3) are not expected to be “significant”.
<u>          </u>	If yes (exposures could be reasonably expected to be “significant” (i.e., potentially “unacceptable”) for any complete exposure pathway) – continue after providing a description (of each potentially “unacceptable” exposure pathway) and explaining and/or referencing documentation justifying why the exposures (from each of the remaining complete pathways) to “contamination” (identified in #3) are not expected to be “significant.”
<u>          </u>	If unknown (for any complete pathway) – skip to #6 and enter “IN” status code

**Rationale and Reference(s):**

Complete exposure pathways were identified for potential contact between impacted groundwater and soil with remedial contractors/consultants and construction workers. Soil concentrations have been compared to the non-residential soil standards. The non-residential soil standards are based on a soil ingestion rate of 100 mg/day, to reflect the amount of soil an outdoor worker might be exposed to verses a typical indoor worker.

Groundwater concentrations have been compared to the NJ GWQS which are calculated based on the assumption of adults consuming two liters of water per day. Due to the assumptions used in calculating the standards which are based on regular contact/ingestion, actual exposure to impacted soil and groundwater at the site will be significantly lower in intensity, duration, and/or frequency for adult remediation contractors/consultants or construction workers. Contact will be limited and only occur during subsurface, invasive activities and not during the completion of any daily tasks.

In addition, there are protocols in place to ensure that there is no unacceptable risk associated with contact with impacted groundwater or soil. These controls consist of: Site Health and Safety Plan (HASP), 40-hour/8-hour refresher OSHA training for remedial contractors/consultants, proper use of Personal Protective Equipment (PPE), and task specific training. All invasive activities conducted at the Site must obtain a permit from the current facility owner/operator (Buckeye). The permit details all activities

necessary for the job and a Job Safety Analysis (JSA) is required with the permit. The JSA ensures that all relevant procedures have been reviewed and dictates the required PPE. All workers involved in performing the job are required to sign the JSA. Access to the Site is restricted and all personnel must check in with a guard upon entering the main site. The terminal portion of the Site is completely enclosed with a gate and all personnel must check in with the security tower prior to gaining access to the terminal portion of the Site.

All groundwater evacuated from monitoring wells will be placed in 55-gallon drums and disposed of by a licensed disposal company. Any impacted materials (used booms, PPE, etc) will also be placed in 55-gallon drums and disposed of by a licensed disposal company.

As additional analytical results become available, Hess will reassess any potential exposure scenarios for impacted Site media.

<sup>4</sup> If there is any question on whether the identified exposures are “significant” (i.e., potentially “unacceptable”) consult a human health Risk Assessment specialist with appropriate education, training and experience.

5. Can the “significant” **exposures** (identified in #4) be shown to be within **acceptable** limits?

\_\_\_\_\_ If yes (all “significant” exposures have been shown to be within acceptable limits) – continue and enter “YE” after summarizing and referencing documentation justifying why all “significant” exposures to “contamination” are within acceptable limits (e.g. a site-specific Human Health Risk Assessment).

\_\_\_\_\_ If no (there are current exposures that can be reasonably expected to be “unacceptable”) – continue and enter “NO” status code after providing a description of each potentially “unacceptable” exposure.

\_\_\_\_\_ If unknown (for any potentially “unacceptable” exposure) – continue and enter “IN” status code

Rationale and Reference(s):

Not Applicable – see rationale in Question 4.

6. Check the appropriate RCRIS status codes for the Current Human Exposures Under Control EI event code (CA725), and obtain Supervisor (or appropriate Manager) signature and date on the EI determination below (and attach appropriate supporting documentation as well as a map of the facility):

<u>      YE      </u>	YE – Yes, “Current Human Exposures Under Control” has been verified. Based on a review of the information contained in this EI Determination, “Current Human Exposures’ are expected to be “Under Control” at the <u>Hess Corporation – Port Reading</u> facility, EPA ID # <u>NJD04544583</u> , located at <u>750 Cliff Road, Port Reading (Woodbridge Township), Middlesex County, NJ</u> under current and reasonably expected conditions. This determination will be re-evaluated when the Agency/State becomes aware of significant changes at the facility.
<u>          </u>	NO – “Current Human Exposures” are NOT “Under Control.”
<u>          </u>	IN – More information is needed to make a determination.



Prepared by:

(signature)

John S. Vigne  
John S. Vigne, Earth Systems

Date

9/25/2020

Reviewed by:

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John Schenck, Hest Corp., 3111  
St. Andrews, EHS

Date

9/25/2020

Approved by:

(signature)

ANDREW PARK

Digitally signed by ANDREW  
PARK  
Date: 2020.09.25 16:00:29 -0400

Date

9/25/2020

Andy Park

Corrective Action Section

Land and Redevelopment Programs Branch

Land, Chemicals and Redevelopment Division

EPA Region 2

Approved by:

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Nikki Azzari

Date

9/28/20

Base Program Management Section

Land and Redevelopment Programs Branch

Land, Chemicals and Redevelopment Division

EPA Region 2

Approved by:

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Adolph Everett

Date

9/28/20

Land and Redevelopment Programs Branch

Land, Chemicals and Redevelopment Division

EPA Region 2

Locations where References may be found:

Attachment 1 – Case Inventory Document
Attachment 2 – Summary of Historic Spills
Attachment 3 – LNAPL/Groundwater Gauging Table
Attachment 4 – Soil Investigation Figures & Tables
Attachment 5 – Groundwater Investigation Figures & Tables
Attachment 6 – Vapor Intrusion Figures & Tables
Attachment 7 – Surface Water & Sediment Figures & Tables
Attachment 8 – Photographs (Bowtie Pool Complex & Fish Consumption Advisory Signage)

Contact telephone and e-mail numbers

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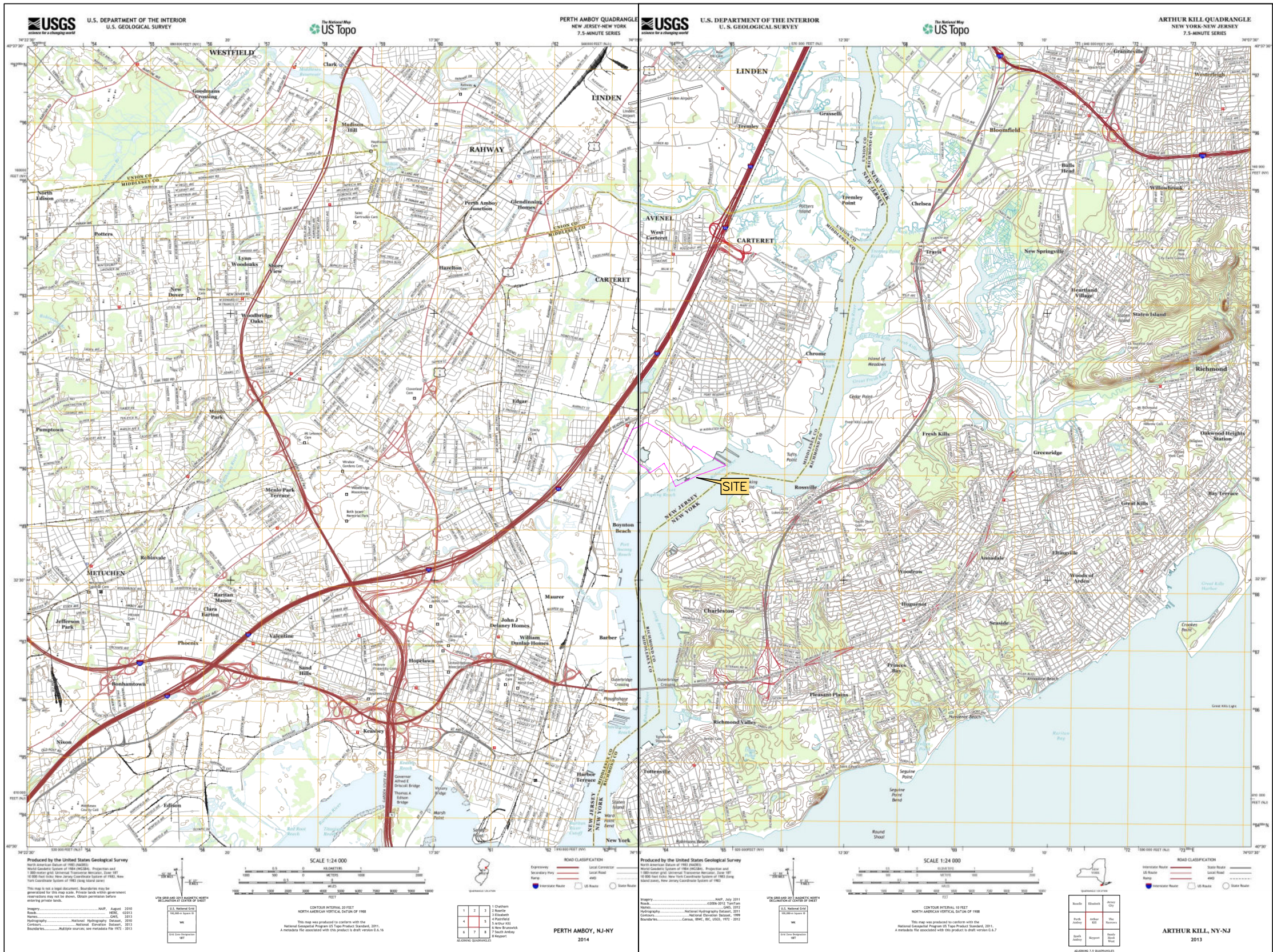
(name)	<u>John Schenkewitz, Sr. Advisor EHS – Hess Corp.</u>
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**FINAL NOTE: THE HUMAN EXPOSURES EI IS A QUALITATIVE SCREENING OF EXPOSURES AND THE DETERMINATIONS WITHIN THIS DOCUMENT SHOULD NOT BE USED AS THE SOLE BASIS FOR RESTRICTING THE SCOPE OF MORE DETAILED (E.G., SITE-SPECIFIC) ASSESSMENTS OF RISK.**



# FIGURES





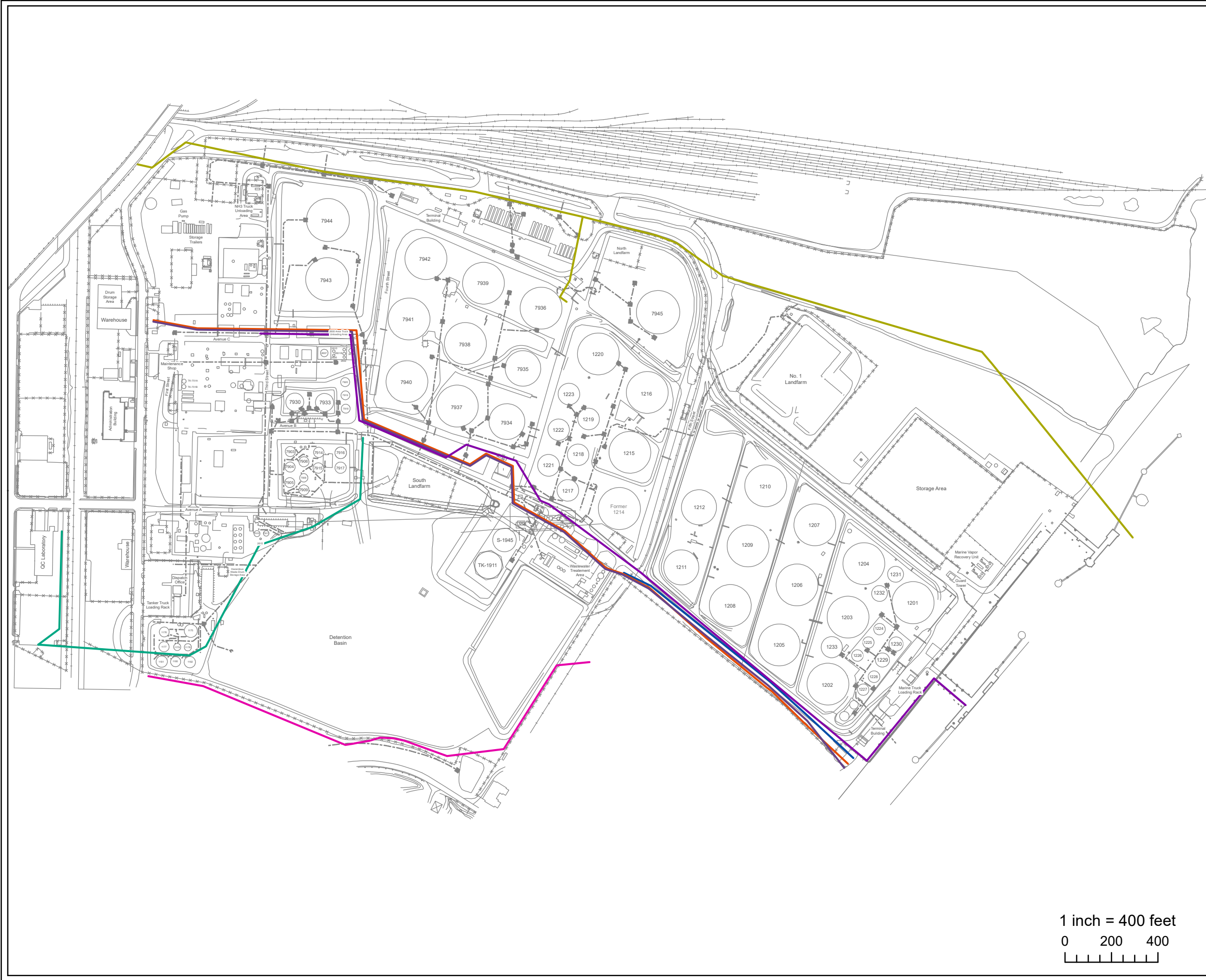
# USGS MAP

Hess Corporation Former Port Reading Complex (HC-PR)  
750 Cliff Road  
Port Reading, New Jersey



Figure 1





**LEGEND**

- Buckeye Pipeline
- Colonial Pipeline
- 12" Spectra Pipeline
- 10" Spectra Pipeline
- Williams Former Trans Continental
- Williams Pipeline
- Unknown Pipeline
- Underground Utility Lines



**FIGURE: 2**  
**SITE PLAN**

**HESS CORPORATION**  
**FORMER PORT READING COMPLEX**  
**750 CLIFF ROAD**  
**PORT READING, NEW JERSEY**

<b>Project #:</b>	1114J01	<b>Drawn:</b>	03/16/2020
<b>SRP PI#:</b>	006148	<b>Drawn By:</b>	KJ



Environmental Engineering  
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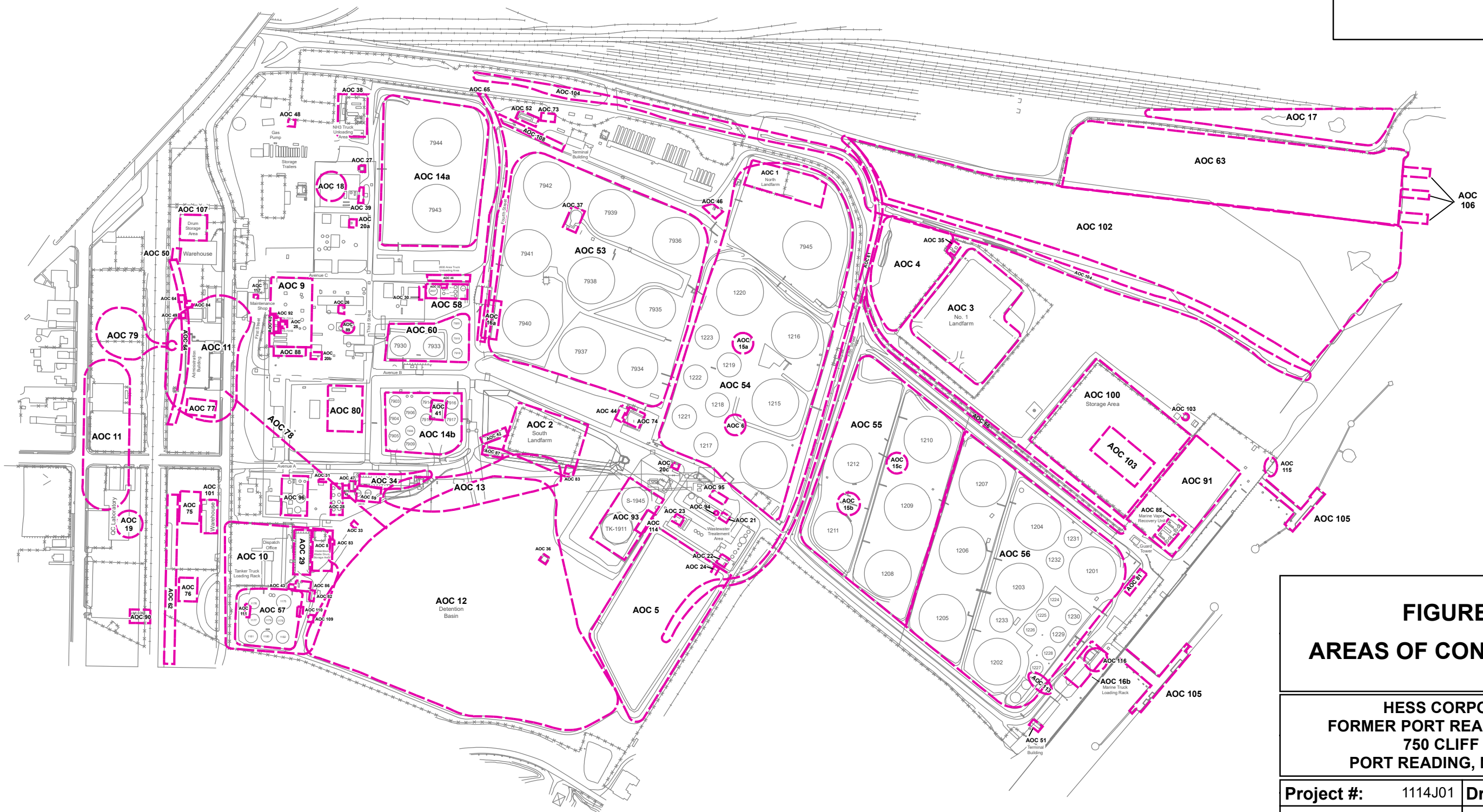
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**LEGEND**

--- AOC Boundary



**FIGURE: 4**  
**AREAS OF CONCERN MAP**

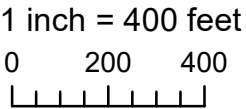
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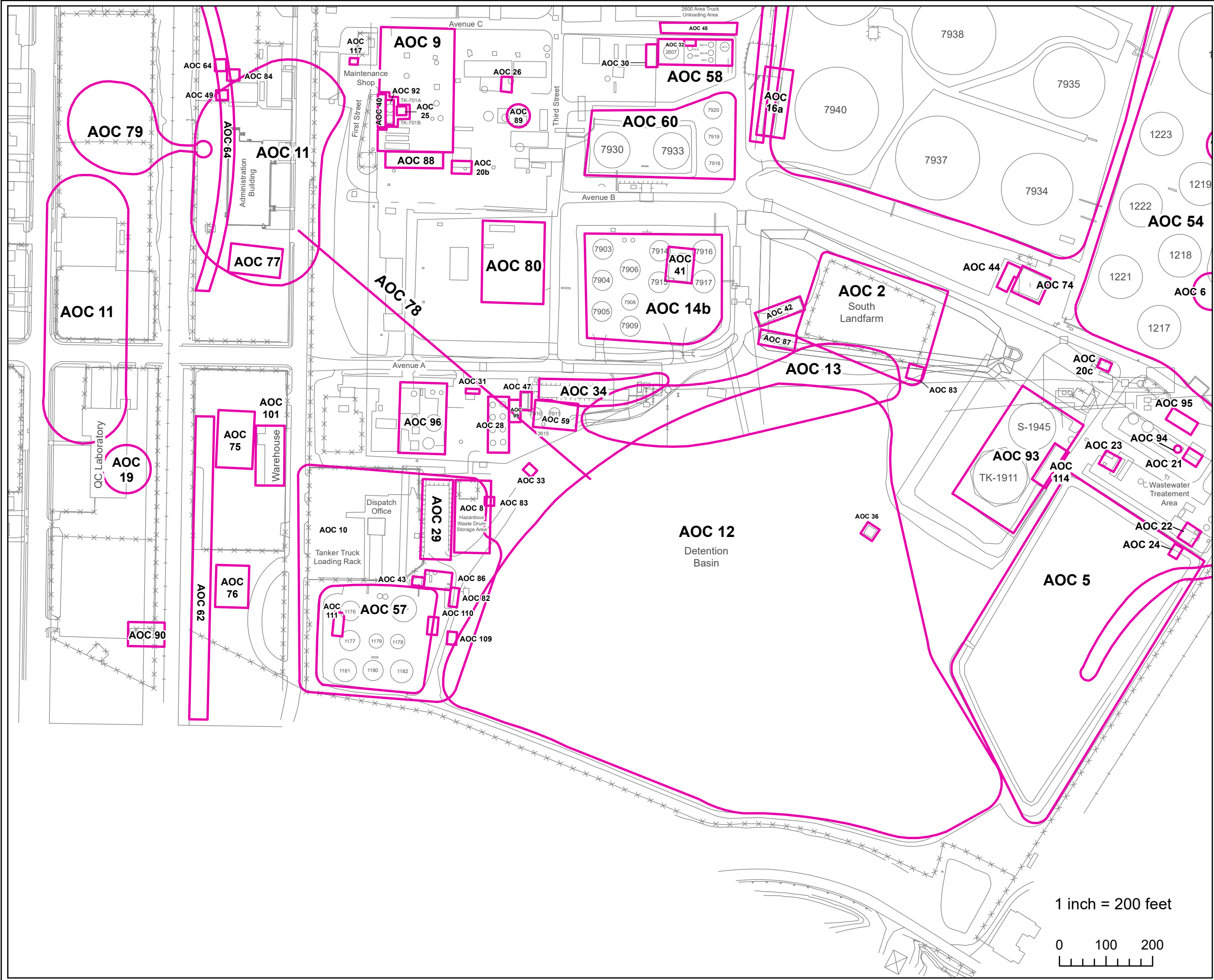
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**LEGEND**

— AOC Boundary

**FIGURE: 4.2**  
**AREAS OF CONCERN MAP**  
**SECTION 2**

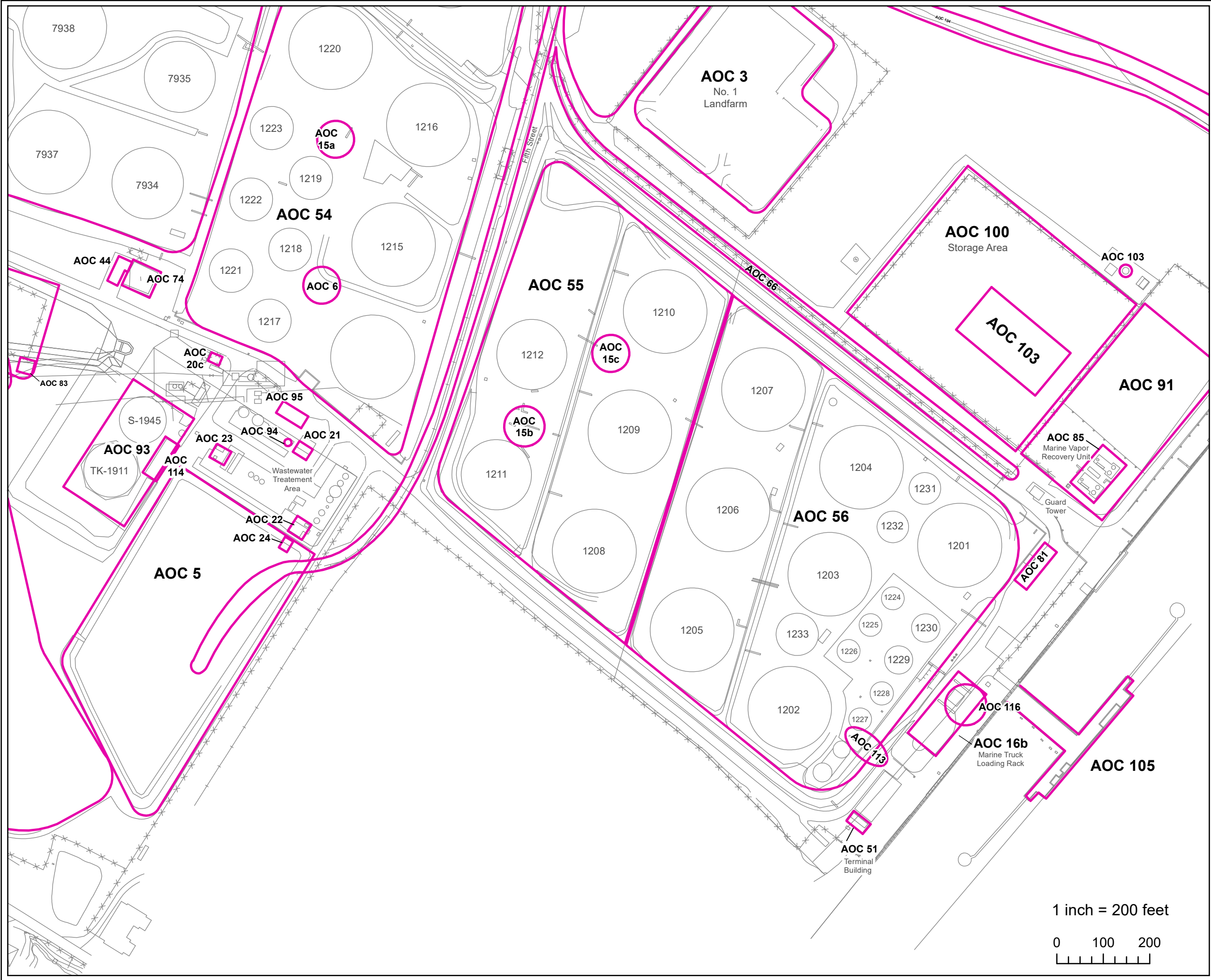
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**LEGEND**

— AOC Boundary

**FIGURE: 4.3**  
**AREAS OF CONCERN MAP**  
**SECTION 3**

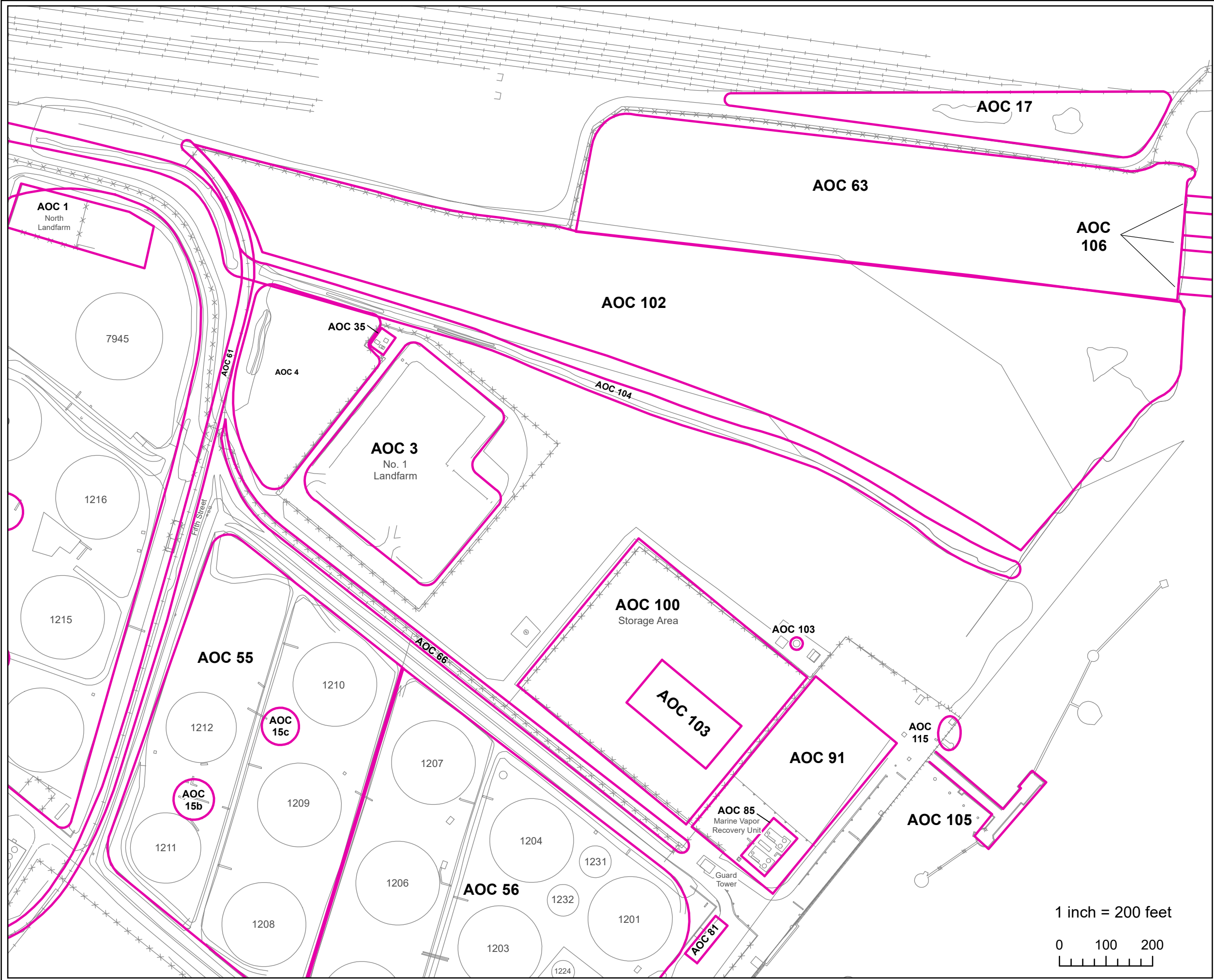
**HESS CORPORATION**  
**FORMER PORT READING COMPLEX**  
**750 CLIFF ROAD**  
**PORT READING, NEW JERSEY**

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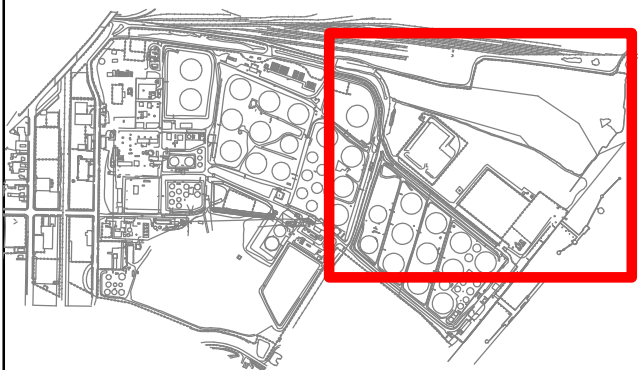
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**LEGEND**

— AOC Boundary



**FIGURE: 4.4  
AREAS OF CONCERN MAP  
SECTION 4**

**HESS CORPORATION  
FORMER PORT READING COMPLEX  
750 CLIFF ROAD  
PORT READING, NEW JERSEY**

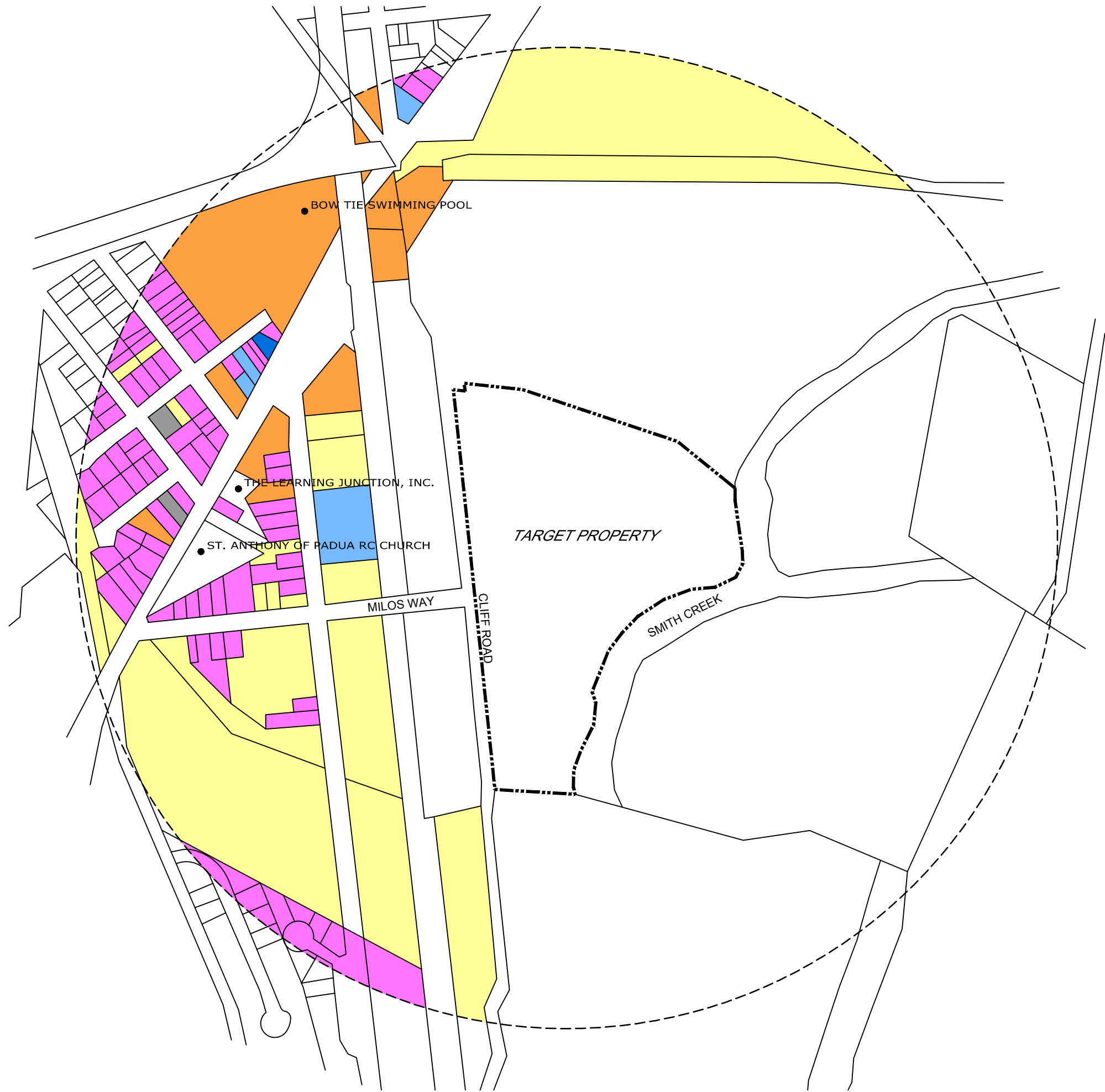
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<b>SRP PI#:</b>	006148	<b>Drawn By:</b>	KJ

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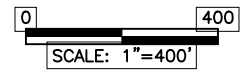
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LEGEND

- RESIDENTIAL
- VACANT LAND
- COMMERCIAL
- PUBLIC PROPERTY
- OTHER EXEMPT
- APARTMENT



1800 FOOT RADIUS TAX MAP	
<b>HESS CORPORATION</b> FORMER PORT READING COMPLEX (HC-PR) 750 CLIFF ROAD PORT READING, NEW JERSEY	
	Figure 5





750 Cliff Rd

**Figure 6**

Current Site Features

1000 ft



# **ATTACHMENT 1**

## **CASE INVENTORY DOCUMENT**

Hess Corporation - Former Port Reading  
Case Name: Complex (HC-PR)  
PI #: 006148

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2) If pasting from a Word document, use the Paste option: Match Destination Formatting  
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Case Inventory Document Version 1.4 02/23/17

AOC ID	AOC Type	AOC Description	Confirmed Contamination	AOC Status	Status Date	Incident #	DEP AOC Number	Contaminated Media	Contaminants of Concern	Additional Contaminants of Concern	Additional Contaminants of Concern	Applicable Remediation Standard	Exposure Route	Additional Exposure Route	RA Type	Additional RA Type	Additional RA Type	Was an Order of Magnitude Evaluation Conducted?	Activity
AOC 1	Discharge and disposal area - Landfarm	North Landfarm - Land Treatment System: RCRA Interim Status Hazardous Waste Land Treatment/Disposal Unit	Yes	RAW	9/28/2016			Mixed Media	VO + BN	Metals		Remediation Standards	Ground Water						Several soil investigations were conducted between 1980 and 2009 at the NLF as part of previously approved closure activities. Seven (7) permitted monitoring wells were installed. In May 2013, Hess submitted Draft Soil and Groundwater Remedial Action Permits. A Remedial Action Workplan (that presents the final closure and post-closure monitoring plan specific to the North Landfarm) was submitted in the third quarter of 2016 to the USEPA and NJDEP. A 90% Remedial Action Design was submitted in October 2019 and is pending review by the NJDEP/EPA.
AOC 2	Discharge and disposal area - Landfarm	South Landfarm - Land Treatment System: RCRA Interim Status Hazardous Waste Land Treatment/Disposal Unit	Yes	RAW	9/23/2016			Mixed Media	VO + BN	Metals		Remediation Standards	Ground Water						Groundwater analytical results from the January 24, 2007 and April 18, 2007 sampling events continue to exhibit concentrations above the GWQS. In May 2013, Hess submitted Draft Soil and Groundwater Remedial Action Permits. A Remedial Action Workplan (that presents the final closure and post-closure monitoring plan specific to the South Landfarm) was submitted in the third quarter of 2016 to the USEPA and NJDEP and comments were provided in March 2019. A Response to Comments is currently being prepared.
AOC 3	Discharge and disposal area - Landfarm	No. 1 Landfarm - Land Treatment System: RCRA Operating Permit for Hazardous Waste Land Treatment/Disposal	Yes	RAW	9/13/2016			Mixed Media	Metals			Remediation Standards	Ground Water						Groundwater analytical results indicate that metal concentrations are above the GWQS. A Remedial Action Workplan (that presents the final closure and post-closure monitoring plan specific to the No. 1 Landfarm) was submitted in the third quarter of 2016 to the USEPA and NJDEP. The 100% design for the Remedial Action Design was submitted in May 2019 and is pending formal approval.
AOC 4	Discharge and disposal area - Historic fill material area/other fill area	Dredge Spoils	No	No Sampling Trigger	10/9/2015										No Remedial Action				Soil, groundwater, and surface water investigations conducted for AOC 4 between 1987 and 2012 were inconclusive, reporting concentrations of targeted compounds, including benzene and chlorobenzene, as non-detect (ND) or below the applicable NJDEP standards. Available quarterly groundwater monitoring data pertaining to L1-2 dating from January 2005 to April 2015 reported benzene and chlorobenzene as ND or below their respective GWQS.
AOC 5	Discharge and disposal area - Sprayfield	Aeration Basins	Yes	RAW	5/15/2015			Mixed Media	Metals + EPH			Remediation Standards	Ground Water		Capping				A Remedial Action Report/Closure Report was submitted for AOC 5: Aeration Basins by EnviroTrac on May 15, 2015. The review is currently pending.
AOC 6	Storage tank and appurtenance - Unregulated underground storage tank	500-gallon UST utilized as temporary storage of water drained from the adjacent aboveground bulk petroleum storage tanks and, any potential hydrocarbons carried with the water.	Yes	RI	10/9/2015			Mixed Media	BN	VO	Metals	Remediation Standards	Ingestion/Dermal	Ground Water					A 500-gallon UST used for the temporary storage of water drained from the adjacent aboveground bulk petroleum storage tanks was previously removed. Soil and groundwater investigations indicate that concentrations of VOCs, SVOCs, and metals are present above applicable NJDEP standards. Further investigation is planned.
AOC 7	Discharge and disposal area - Area of discharge pursuant to N.J.A.C. 7:1E	Central Colonial Pipeline - release of unknown hydrocarbons	Yes	RI	10/9/2015	91-05-14-1356		Mixed Media	VO + BN	Metals	PAHs	Remediation Standards	Ground Water						Soil and groundwater investigations indicate that LNAPL is present in AOC-7 and that concentrations of VOCs, SVOCs, PAHs, and metals are present above applicable NJDEP standards. Further investigation is planned.
AOC 8	Storage and staging area - Storage pad and area	Waste Container Storage Area	Yes	RI	10/9/2015			Mixed Media	VO + BN	PCBs	Metals	Remediation Standards							Soil and groundwater investigations indicate that contaminant concentrations of VOCs, BNs, metals and PAHs are above applicable NJDEP standards. Further investigation is planned.
AOC 9	Other areas of concern - Underground piping including industrial process sewer	Alkylation Unit (Sewer Line) - The Alkylation Unit process area contains 11 catch basins connected to piping from process neutralization tanks and stormwater runoff collection points.	Yes	RI	10/9/2015	92-10-28-1052-59, 07-05-11-1330-47		Mixed Media	VO + BN	Metals		Remediation Standards	Ground Water						Soil and groundwater investigations indicate that contaminant concentrations of VOCs, BNs, and metals are above applicable NJDEP standards. Further investigation is planned.
AOC 10	Storage tank and appurtenance - Loading and unloading area	Truck Loading Rack (TLR)	Yes	RI	3/16/2017	93-4-30-1638-14, 93-10-21-1435-21, 97-11-7-1647-16, 08-08-14-0949-36		Ground Water	VO + BN			Remediation Standards	Ground Water						The Truck Loading Rack (TLR) is used to load customer fuel trucks with gasoline, heating oil, and diesel fuel. Several historic spills have occurred at the TLR since 1993. Monitoring wells installed around the TLR have historically detected product. Historic groundwater samples have detected VOCs and BNs above the GWQS. Investigation is also being conducted to examine and inspect the product under the asphalt which migrates to the regional storm water passing through AOC 10. A Supplemental RIW is being submitted in February 2020 to complete soil and groundwater delineation.
AOC 11a	Storage tank and appurtenance - State or Federal Regulated underground storage tank	Administration Building USTs: One 550gallon UST of unknown contents; one 3,000 gallon #2 fuel oil UST; one 2,000 gallon #2 fuel oil UST; and one 5,000 gallon #6 fuel oil UST	Yes	RI	3/2/2016	90-08-29-1617		Mixed Media	VO + BN			Remediation Standards	Ground Water						In the early 1990s, four USTs were removed from the area of the current Administration Building. Previous soil and and groundwater investigations have demonstrated the existence of a chlorinated solvent plume near the Administration Building. In addition, previous vapor investigation indicate contaminant concentrations above NJDEP screening levels. Further soil and groundwater investigations are planned.
AOC 11b	Storage tank and appurtenance - State or Federal Regulated underground storage tank	Two 3,000-gallons #2 fuel oil USTs associated with the Former Training Center	Yes	NFA-A DEP Issued (Unrestricted Use)	2/7/1995	91-08-22-1911-24, 94-10-5-1620-28		Mixed Media	VO + BN	TPHC		Remediation Standards	Ingestion/Dermal	Ground Water	Excavation				Two (2) 3,000-gallon #2 fuel oil USTs were previously removed. Several soil and groundwater investigations have been conducted. Impacted soil was removed and disposed of off-site. NFA was granted by NJDEP in February 1995. No further investigation is planned.

Hess Corporation - Former Port Reading  
Case Name: Complex (HC-PR)  
PI #: 006148

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AOC 12	Drainage system and area - Surface water body	Smith Creek and Detention Basin	Yes	RAW	8/17/2016			Surface Water	VO+ Metals	BN		Remediation Standards	Ground Water						Surface and groundwater investigations conducted at this AOC indicate that contaminant concentrations are above applicable NJDEP standards. Further investigation is planned. A supplemental RIW is being submitted in February 2020 to complete delineation.
AOC 13	Storage and staging area - Surface impoundment and lagoon	Former Oil Water Lagoons - AOC-13, Former Oil Water Lagoons, is comprised of three (3) former lagoon areas: the Former Oily Water Lagoon (or Oil/Water Separator Lagoon), the Former Mini-Lagoon, and the Former Filter Backwash Lagoon.	Yes	RAW	10/9/2015			Mixed Media	VO+ Metals	EPH + BN	VO	Remediation Standards	Ground Water						Soil and groundwater investigations conducted at the Former Oil Water Lagoon Area indicate that contaminant concentrations are above applicable NJDEP standards. Further investigation is planned.
AOC 14a	Storage tank and appurtenance - Above ground storage tank	1st Tankfield - This AOC is located on the west side of the property within the refinery operations section of the site and is subdivided into AOC 14A and AOC 14B. The south portion of the AOC (14B) is also a double containment area that houses 10 ASTs. AOC 14B also contains a gasoline additive truck unloading area and associated concrete pad. Current & historical storage within the AOC includes MTBE, TAME, Slurry Oil, Light Cycle Oil, Raffinate, Methanol, Process Water, Gasoline, & Sour Water.	Yes	RI	10/9/2015			Mixed Media	VO + BN	Metals		Remediation Standards	Ground Water						Soil and groundwater investigations conducted at this AOC indicate that contaminant concentrations are above applicable NJDEP standards. Further investigation is planned.
AOC 14b	Storage tank and appurtenance - Above ground storage tank	Rundown Tankfield - This AOC is located on the west side of the property within the refinery ops section of the site and is subdivided into AOC 14A and AOC 14B. The south portion of the AOC (14B) is also a double containment area that houses 10 ASTs. AOC 14B also contains a gasoline additive truck unloading area & associated concrete pad. Current and historical storage within the AOC includes MTBE, TAME, Slurry Oil, Light Cycle Oil, Raffinate, Methanol, Process Water, Gasoline, & Sour Water.	Yes	RI	10/9/2015			Mixed Media	VO + BN	Metals		Remediation Standards	Ground Water						Groundwater investigations conducted at the Rundown Tankfield Area indicate that contaminant concentrations are above applicable NJDEP standards. Further investigation is planned.
AOC 15a	Storage tank and appurtenance - Unregulated underground storage tank	500-gallon #4 heating oil and 550-gallon #4 heating oil	Yes	RI	10/9/2015	89-11-15-1637		Mixed Media	TPHC	VO + BN		Remediation Standards	Ground Water		Excavation				A 500-gallon UST and 550-gallon UST were previously removed. Contaminated soils were excavated. Groundwater investigations indicate that contaminant concentrations are above applicable NJDEP standards. Further investigation is planned.
AOC 15b	Storage tank and appurtenance - State or Federal Regulated underground storage tank	1,000 gallon #6 fuel oil and 550-gallon #2 diesel fuel	Yes	RI	10/9/2015			Ground Water	VO + BN			Remediation Standards	Ground Water		Excavation				A 1,000-gallon #6 fuel oil UST and a 550-gallon #2 fuel oil UST were previously removed. Contaminated soils were excavated. Groundwater investigations indicate that contaminant concentrations are above applicable NJDEP standards. Further investigation is planned.
AOC 15c	Storage tank and appurtenance - Unregulated underground storage tank	550-gallon #6 Fuel oil	Yes	RI	10/9/2015			Mixed Media	TPHC	BN		Remediation Standards	Ground Water		Excavation				A 550-gallon #6 fuel oil UST was previously removed. Soil and groundwater investigations indicate that contaminant concentrations are above applicable NJDEP standards. Further investigation is planned.
AOC 16a	Storage tank and appurtenance - Loading and unloading area	Railcar Loading Area	No	No Sampling Trigger	10/9/2015			Ground Water	VO			Remediation Standards	Ground Water						Groundwater investigations conducted near the Railcar Loading Area indicate that chlorinated solvents were detected above GWQS and are attributed to an off-site source. Further investigation is planned to illustrate that impacts are not from the operations performed at this AOC and are from an unknown source.
AOC 16b	Storage tank and appurtenance - Loading and unloading area	Marine Terminal Loading Rack Area	Yes	RI	10/9/2015			Mixed Media	VO + PAHs	TPHC		Remediation Standards	Ground Water						Groundwater investigations conducted near the marine terminal loading area indicate that contaminant concentrations are above applicable NJDEP standards. Further investigation is planned.
AOC 17	Storage tank and appurtenance - Loading and unloading area	Coal Loading Rack	No	No Sampling Trigger	10/9/2015			None				Remediation Standards							The NJDEP requested that this AOC be investigated in a letter dated March 12, 2003. A chain of title conducted in 2011 showed that Hess Corporation had never owned or leased the parcel referenced by this AOC. This was acknowledged by the EPA in a letter dated October 16, 2014. No further investigation is planned.
AOC 18	Storage tank and appurtenance - Loading and unloading area	Dimersol Unit	Yes	RI	10/9/2015			Soil	Metals			Remediation Standards							Soil investigations conducted near the Dimersol Unit used in the production of high octane fuels indicate that contaminant concentrations are above applicable NJDEP standards. Further investigation is planned.
AOC 19	Storage tank and appurtenance - Unregulated underground storage tank	Quality Control Laboratory	Yes	RAR	7/31/2019	13-07-24-1427-02		Mixed Media	VO+ Metals			Remediation Standards	Ground Water	Ingestion/Dermal	Excavation	Capping	Institutional Control		The QC Laboratory was demolished in 2015 and included the decommissioning of 4 USTs. Soil and groundwater investigations conducted at the QC Laboratory area indicated that contaminant concentrations were above applicable NJDEP standards in the vicinity of former UST T2. The remedial investigation was complete in 2016. In November 2016, impacted soil was excavated and soil sampling and groundwater sampling confirm that the remediation was effective. Residual groundwater metal and benzene impacts are still present and a CEA is being proposed. Isolated exceedances of metals in soil, unrelated to former operation, are being addressed through the use of institutional and engineering controls.

Hess Corporation - Former Port Reading  
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AOC 20	Other areas of concern - Electrical transformer and capacitor	Transformers & Rectifiers	No	PA	10/9/2015			None				Remediation Standards							A total of 77 transformers and rectifiers are present on the property. The transformers and rectifiers were labeled as non-PCB and no evidence of leaks or a release or a release of cooling fluid was observed in the vicinity of the transformers and rectifiers, with the exception of the transformers described as AOC-20a, AOC-20b, and AOC-20c. No further investigation is planned at this time.
AOC 20a	Other areas of concern - Electrical transformer and capacitor	T-1600A & T-1600B Transformers.	Undetermined	PA/SI	10/9/2015							Remediation Standards							The two transformers were labeled as "PCB-contaminated. Staining was observed. However, soil investigations indicate that concentrations are below applicable NJDEP standards. No further investigation is planned at this time.
AOC 20b	Other areas of concern - Electrical transformer and capacitor	T510A & T510B Transformers.	Undetermined	PA/SI	10/9/2015							Remediation Standards							The two transformers were labeled as non-PCB contaminated. Soil investigations indicate that concentrations are below applicable NJDEP standards. No further investigation is planned at this time.
AOC 20c	Other areas of concern - Electrical transformer and capacitor	T2606A & T2606B Transformers.	Undetermined	PA/SI	10/9/2015			Soil	PCBs			Remediation Standards							The two transformers were not labeled with PCB content labels. Staining was observed. Soil investigations indicate that concentrations are below applicable NJDEP standards. No further investigation is planned at this time.
AOC 21	Storage tank and appurtenance - Piping, above/below ground pump station, sump/pit	X-1933- Adsorber Feed Sump.	Undetermined	PA/SI	10/9/2015			Mixed Media	BN			Remediation Standards							The concrete pit is heavily stained around the sides. A steel pipe was discharging water to the pit. A 275-gallon tote containing hydrogen peroxide was stored on the concrete platform. Soil investigations indicate that concentrations are above applicable NJDEP standards. Further investigation is planned.
AOC 22	Storage tank and appurtenance - Piping, above/below ground pump station, sump/pit	X-1908- Clarifier Lift Sump.	Undetermined	PA/SI	10/9/2015			Soil	BN + Metals			Remediation Standards							Soil investigations conducted at the concrete lined clarifier lift sump indicate that contaminant concentrations are above applicable NJDEP standards. Further investigation is planned.
AOC 23	Drainage system and area - Storm sewer collection system	X-1904 Stormwater Transfer Pump S-1922 API Stormwater Separator X-1903 Stormwater Diversion Manhole	Undetermined	PA/SI	10/9/2015			Soil	VO + BN	Metals		Remediation Standards	Ingestion/Dermal						Soil investigations at this AOC indicate that contaminant concentrations are above applicable NJDEP standards. Further investigation is planned.
AOC 24	Drainage system and area - Storm sewer collection system	Sluice Pit	Undetermined	PA/SI	10/9/2015			Soil	BN + Metals			Remediation Standards	Ingestion/Dermal						Soil investigations at the concrete lined sluice pit indicate that contaminant concentrations are above applicable NJDEP standards. Further investigation is planned.
AOC 25	Storage tank and appurtenance - Piping, above/below ground pump station, sump/pit	X-1950 and X-1950B- Alkylation Neutralization Basin	Undetermined	PA/SI	10/9/2015			Soil	Other	VO		Remediation Standards	Ingestion/Dermal						Soil investigations around the Alkylation Neutralization Basin indicate that contaminant concentrations are above applicable NJDEP standards. Further investigation is planned.
AOC 26	Storage tank and appurtenance - Piping, above/below ground pump station, sump/pit	D-1104 MEA Sump	Undetermined	PA/SI	10/9/2015			Soil	Metals			Remediation Standards	Ingestion/Dermal						Soil investigations conducted at the Monoethanolamine (MEA) Sump area indicate that contaminant concentrations are above applicable NJDEP standards. Further investigation is planned.
AOC 27	Discharge and disposal area - Waste water treatment systems/septic/seepage pit/dry well	EADC Disposal Pit	Undetermined	PA/SI	10/9/2015			Soil	Metals			Remediation Standards	Ingestion/Dermal						Soil investigations conducted at the Ethylaluminum Dichloride (EADC) Disposal Pit indicate that contaminant concentrations are above applicable NJDEP standards. Further investigation is planned.
AOC 28	Storage tank and appurtenance - Above ground storage tank	Cooling Water Tower	Undetermined	PA/SI	10/9/2015			Soil	Metals			Remediation Standards	Ingestion/Dermal						Soil investigations conducted near the concrete beneath and around the cooling water tower indicate that contaminant concentrations are above applicable NJDEP standards. Further investigation is planned.
AOC 29	Storage tank and appurtenance - Piping, above/below ground pump station, sump/pit	Mixing Basin	Undetermined	PA/SI	10/9/2015			Mixed Media	Metals			Remediation Standards							Based on the types of processes conducted in the mixing basin, a potential exists for a release of hazardous substances. Further investigation is planned.
AOC 30	Discharge and disposal area - Waste water treatment systems/septic/seepage pit/dry well	Sulfur Pit	Undetermined	PA/SI	10/9/2015			Mixed Media	Metals			Remediation Standards							Based on the extensive former use of the Sulfur Pit, a potential exists for a release of hazardous substances. No further investigation is planned.
AOC 31	Storage tank and appurtenance - Piping, above/below ground pump station, sump/pit	Brine Pit	Undetermined	PA/SI	10/9/2015			Mixed Media	Other			Remediation Standards							The concrete pit had a metal lid and the interior was not open for observations. The concrete pit was later identified as the Brine Pit and is utilized to add salt to the cooling water. Based on this information, the potential exists for a release of hazardous substances to the soil and groundwater. Further investigation is planned.
AOC 32	Discharge and disposal area - Waste water treatment systems/septic/seepage pit/dry well	X- 1951- SRU Neutralization Basin	Undetermined	PA	10/9/2015			Mixed Media	Other			Remediation Standards							Soil investigations conducted at the concrete-lined SRU Neutralization Basin indicate that contaminant concentrations are below applicable NJDEP standards. No further investigation is planned at this time.
AOC 33	Drainage system and area - Storm sewer collection system	X-1936 Truck Rack Sump 2	Undetermined	PA/SI	10/9/2015			Mixed Media	VO + PAHs			Remediation Standards	Ground Water						Soil and groundwater investigations conducted at the concrete-lined pit identified as the Truck Rack Sump No. 2 indicate that contaminant concentrations are above applicable NJDEP standards. Further investigation is planned.
AOC 34	Drainage system and area - Storm sewer collection system	Several pieces of equipment associated with the API Separator including the following: S-1921A – Process Water Corrugated Plate Separator, S-1921B – Process Water Corrugated Plate Separator, X-1922A – API Separator, X-1922B – API Separator, X-1924 – API Separator Oil Sump, X-1925 – API Separator Sump, X-1926 – Storm Water Lagoon Sump, X-1930 – Surge Pumping Station, and X-1932 – API Splitter Box.	Undetermined	PA	10/9/2015			Soil	VO			Remediation Standards	Ingestion/Dermal						Based on site observations at the API Truck Loading Area, a potential exists for a release of hazardous substances. Further investigation is planned.
AOC 35	Drainage system and area - Building sump and pit	No.1 Landfarm Discharge Sumps	Undetermined	PA	10/9/2015			Soil	VO + BN	Metals		Remediation Standards	Ingestion/Dermal						Soil investigations conducted at the three concrete pads identified as sumps S-1941, S-1942 and an oil/water separator indicate that contaminant concentrations are above applicable NJDEP standards. Further investigation is planned.



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AOC 36	Other areas of concern - Any area suspected of containing contaminants	Flare Tower	Undetermined	PA	10/9/2015			Mixed Media	VO			Remediation Standards							The flare tower was active and connected to the Flare Knock Out Drum (AOC-87). Although it was not directly observed, a sump was identified beneath the flare tower. No staining or evidence of a release of hazardous substances was observed in the vicinity of the flare tower; however, a potential exists for a release of hazardous substances. Further investigation is planned.
AOC 37	Storage tank and appurtenance - Loading and unloading area	No. 2 Oil Detergent and Additive Truck Unloading Area	Undetermined	PA	10/9/2015			Mixed Media	VO + BN			Remediation Standards							Several pumps, piping, empty concrete slabs, and one approximately 345-gallon unlabeled steel tote were observed. The equipment was identified as part of the No. 2 Oil Detergent and Additive Truck Unloading Area. Pounded water with a red color was observed within a concrete secondary containment area. Several areas of stained concrete and gravel were observed in the vicinity. Based on site observations, a potential exists for a release of hazardous substances. Further investigation is planned.
AOC 38	Storage and staging area - Storage pad and area	NH3 Truck Loading Rack/Ammonia Area	Undetermined	PA/SI	10/9/2015			Soil	Metals			Remediation Standards	Ingestion/Dermal						Soil investigations at the Ammonia Truck Loading Rack indicate that contaminant concentrations are above applicable NJDEP standards. No further investigation is planned.
AOC 39	Storage tank and appurtenance - Loading and unloading area	EADC Truck Unloading Area	Undetermined	PA	10/9/2015			Mixed Media	VO + BN			Remediation Standards							One metal-siding building was observed in the east portion of the Dimersol Unit. The interior of the building consisted of several "storage drums," which were large ASTs mounted on concrete supports. Several piping runs and three pumps were observed within the building as well. The concrete supports in which the pumps were mounted were heavily stained. The building was identified as the EADC Truck Unloading Area. Based on observations made during the site visit, a potential exists for a release of hazardous substances. Further investigation is planned.
AOC 40	Storage tank and appurtenance - Loading and unloading area	Fresh Acid Unloading Area	Undetermined	PA	10/9/2015			Mixed Media	Other			Remediation Standards							No further investigation of the Fresh Acid Unloading Area is warranted at this time as it is located in the vicinity of the Alkylation Neutralization Basin (AOC-25), in which further investigation is planned.
AOC 41	Storage tank and appurtenance - Loading and unloading area	Gasoline Additive Truck Unloading Rack	Undetermined		10/9/2015			Mixed Media	VO			Remediation Standards							No staining or evidence of a release of hazardous substances was observed on the concrete slab or in the vicinity. Based on the observations made during the site visit, no further investigation is planned.
AOC 42	Storage tank and appurtenance - Loading and unloading area	Methanol Truck Unloading Area, Decontamination Area	Yes	PA/SI	10/9/2015			Ground Water	VO			Remediation Standards	Ground Water						Groundwater samples collected to investigate the South Landfarm (AOC-2) identified contamination in the vicinity of this AOC. No further investigation is planned at this time as there is ongoing groundwater sampling conducted in the vicinity.
AOC 43	Storage tank and appurtenance - Loading and unloading area	Truck Unloading (Prover Truck) Area 1	Undetermined	PA	10/9/2015			Soil	VO + BN	Metals		Remediation Standards	Ingestion/Dermal						Soil investigations conducted at the Truck Loading Rack indicate that contaminant concentrations are above applicable NJDEP standards. Further investigation is planned.
AOC 44	Storage tank and appurtenance - Loading and unloading area	Truck Unloading (Prover Truck) Area 2	Undetermined	PA	10/9/2015			Mixed Media	VO + BN	PAHs	Metals	Remediation Standards	Ground Water						Soil and groundwater investigations conducted in the vicinity of the pumps and piping at this AOC indicate that contaminant concentrations are above applicable NJDEP standards. Further investigation is planned.
AOC 45	Storage tank and appurtenance - Loading and unloading area	SRU Truck Unloading Area	Undetermined	PA	10/9/2015			Soil	BN			Remediation Standards	Ingestion/Dermal						Soil investigations conducted at the SRU Truck Unloading Area indicate that contaminant concentrations are above applicable NJDEP standards. Further investigation is planned.
AOC 46	Storage tank and appurtenance - Loading and unloading area	Slop Gasoline Unloading Area	Undetermined	PA	10/9/2015			Mixed Media	VO + BN	Metals		Remediation Standards	Ground Water						Soil and groundwater investigations conducted at the Slop Gasoline Unloading Area indicate that contaminant concentrations are above applicable NJDEP standards. Further investigation is planned.
AOC 47	Storage tank and appurtenance - Loading and unloading area	Bleach Truck Unloading Area	Undetermined	PA	10/9/2015			Soil	Metals			Remediation Standards	Ingestion/Dermal						Soil investigations conducted near the two small ASTs at the Bleach Truck Unloading Area indicate that contaminant concentrations are above applicable NJDEP standards. Further investigation is planned.
AOC 48	Storage tank and appurtenance - Piping, above/below ground pump station, sump/pit	Gasoline Dispenser and AST	Undetermined	PA	10/9/2015			Mixed Media	VO			Remediation Standards							Soil investigations at the gasoline AST and dispenser area indicate that contaminant concentrations are below applicable NJDEP standards. No further investigation is planned at this time.
AOC 49	Storage tank and appurtenance - Above ground storage tank	Electrician Shop Diesel/No. 2 Fuel Oil ASTs	Undetermined	PA	10/9/2015			Soil	Metals			Remediation Standards	Ingestion/Dermal						Soil investigations conducted near the four, 275-gallon fuel oil ASTs indicate that contaminant concentrations are above applicable NJDEP standards. Further investigation is planned.
AOC 50	Storage tank and appurtenance - Above ground storage tank	Refinery Warehouse Diesel/No. 2 Fuel Oil ASTs	Undetermined	PA	10/9/2015			Mixed Media	BN			Remediation Standards							Soil investigations near the 1,000-gallon fuel oil and 275-gallon fuel oil ASTs indicate that contaminant concentrations are below applicable NJDEP standards. No further investigation is planned at this time.
AOC 51	Storage tank and appurtenance - Above ground storage tank	2nd Reserve Boiler AST	Undetermined	PA	10/9/2015			Mixed Media	BN			Remediation Standards							The two ASTs were located within a concrete block secondary containment with a gravel bottom. Additionally, the two ASTs were connected to two inactive boilers within the Second Reserve Terminal Building. No staining or evidence of a release was observed during the site visit. No further investigation is planned at this time.
AOC 52	Storage tank and appurtenance - Above ground storage tank	TK-7925 AST	Undetermined		10/9/2015							Remediation Standards							Soil investigations conducted near the large AST located northwest of the Terminal Building indicate that contaminant concentrations are below applicable NJDEP standards. No further investigation is planned at this time.

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AOC 53	Storage tank and appurtenance - Above ground storage tank	The Second Tankfield consisted of several large ASTs: TK-7934 (6,345,000g. - Unleaded Gasoline), TK-7935 (6,345,000g. - Gasoline), TK-7936 (9,137,000g. - Unleaded Gasoline), TK-7937 (9,137,000g. - Unleaded Gasoline), TK-7938 (9,137,000g. - Crude Oil/No. 2 Fuel Oil/Gasoline/Distillate), TK-7939 (9,137,000g. - Russian Gas Oil), TK-7940 (9,137,000g. - Light Cycle Oil/Distillate), TK-7941 (6,345,000g. - Light Cycle Oil/Distillate), and TK-7942 (9,137,000g. - No. 2 Oil/Jet Fuel/Distillate/Diesel)	Undetermined	PA	10/9/2015			Mixed Media	BN + Metals			Remediation Standards	Ground Water						Soil and groundwater investigations conducted near the ASTs at the Second Tankfield area indicate that contaminant concentrations are above applicable NJDEP standards. No further investigation is planned.
AOC 54	Storage tank and appurtenance - Above ground storage tank	3rd Tankfield - TK-1215 (9,137,000g. - Catfeed), TK-1216 (9,137,000g. - Catfeed), TK-1217 (2,265,018g. - Wastewater/Gasoline), TK-1218 (2,265,018g. - Gasoline), TK-1219 (2,265,018g. -Wastewater/Gasoline), TK-1220 (9,137,000g. -Catfeed), TK-1221 (2,265,018g. -Unleaded Gasoline), TK-1222 (2,265,018g. -Unleaded Gasoline), TK-1223 (2,484,100g. -MTBE/Gasoline), TK-1236 (17,600g. -Condensate Water), and TK-7945 (9,137,000g. -Unleaded Gasoline/Catfeed/Benzene/No. 2 Fuel Oil/Kerosene/Jet Fuel).	Undetermined	PA	10/9/2015			Mixed Media	VO			Remediation Standards							Based on site observations at the Third Tankfield area, a potential exists for a release of hazardous substances. Further investigation is planned.
AOC 55	Storage tank and appurtenance - Above ground storage tank	4th Tankfield - The ID, approximate volume, and contents of the tanks are: TK-1208 (9,137,000gallons - Catfeed), TK-1209 (9,137,000 gallons -Catfeed), TK-1210 (9,137,000 gallons - Catfeed), TK-1211 (6,305,500 gallons - Unleaded Gasoline), TK-1212 (6,305,500 gallons - Slurry/Gasoline).	Undetermined	PA	10/9/2015			Soil	VO + BN	Metals		Remediation Standards	Ingestion/Dermal						Soil investigations conducted at the Fourth Tankfield Area indicate that contaminant concentrations are above applicable NJDEP standards. No further investigation is planned.
AOC 56	Storage tank and appurtenance - Above ground storage tank	2nd Res.-T1201(9.1M g-caustic/Gas),T1202(6.3M g-Gas),T1203(9.1M g-Gas),T1204(9M g-No2 Oil),T1205(9.1M g-Gas),T1206 (9M g-JetFuel/Gas),T1207(9M g-Gas),T1224(433K g-No2 Oil),T1225(433K g-Diesel/No2 Oil),T1226(433K g-Diesel/No2 Oil),T1227(433K g-JetFuel/Kerosene/Distillate),T1228(433K g-JetFuel),T1229(846K g-Methanol/Ethanol),T1230(846K g-Gas),T1231(1.2M g-Ethanol),T1232(1.2M g-Gas),T1233(Unknown-Gas), T1234(1.7M g-Gas/JetFuel/No2 Oil/Kerosene/Benzene),& T1240(295K g-Distillate/RO FeedWater)	Undetermined	PA	10/9/2015			Mixed Media	VO + BN	Metals	EPH	Remediation Standards	Ground Water						Soil and groundwater investigations conducted near the ASTs located at the Second Reserve Tankfield Area indicate that contaminant concentrations are above applicable NJDEP standards. Further investigation is planned.
AOC 57	Storage tank and appurtenance - Above ground storage tank	Day Tankfield - TK-1101 (Unknown - Petroleum Additive), TK-1102 (Unknown-Xylene, Ethylbenzene, Petroleum Additive), TK-1175 (Unknown-No. 2 Oil, Distillate), TK-1176 (424,500g. - Ethanol 200 Proof, Gasoline, Benzene), TK-1177 (Unknown-No. 2 Oil, Gasoline), TK-1178 (211,500g. - No. 2 Oil, Gasoline), TK-1179 (Unknown-Unleaded Gasoline, Gasoline, Benzene), TK-1180 (Unknown-Gasoline), TK-1181 (649,700g. - Gasoline), and TK-1182 (Unknown-Diesel, Distillate)	Undetermined	PA	10/9/2015			Mixed Media	VO + BN			Remediation Standards	Ground Water						Soil and groundwater investigations conducted near the ASTs at the Day Tankfield Area indicate that contaminant concentrations are above applicable NJDEP standards. Further investigation is planned.
AOC 58	Storage tank and appurtenance - Above ground storage tank	Chemical Storage - TK-2601A (30,000 gallons - 50 BeCaustic), TK-2601B (30,000 gallons - Spent Acid, 50 BeCaustic), TK-2602 (12,600 gallons -Caustics), TK-2606 (14,800 gallons - Caustics, Dilute Amine, Urcalsol Storage), TK-2607 (114,300 gallons -Spent Acid), TK-2610 (14,700 gallons -Spent Caustics), and TK-2613 (Unknown - Dimersol Spent Caustics).	Undetermined	PA	10/9/2015			Mixed Media	Other			Remediation Standards							Soil investigations conducted near the Chemical Storage Area indicate that contaminant concentrations are below applicable NJDEP standards. Further investigation is planned at this time.
AOC 59	Storage tank and appurtenance - Above ground storage tank	API Storage	Undetermined	PA	10/9/2015			Mixed Media	BN			Remediation Standards							Soil investigations conducted near the API Storage Area indicate that contaminant concentrations are below applicable NJDEP standards. Further investigation is planned at this time.
AOC 60	Storage tank and appurtenance - Above ground storage tank	Avenue B Tankfield	Undetermined	PA	10/9/2015			Mixed Media	VO			Remediation Standards							Soil investigations conducted near the ASTs located at the Avenue B Tankfield Area indicate that contaminant concentrations are below applicable NJDEP standards. No further investigation is planned at this time.
AOC 61	Other areas of concern - Other discharge area	Inactive RR Spur	Undetermined	PA	10/9/2015			Mixed Media	VO + BN			Remediation Standards							Portions of the inactive rail spur were observed extending to the southwest between the Third and Fourth Tankfields. No staining, stressed vegetation, or evidence of a release of hazardous substances was observed during the site visit; however, based on the historic presence of the rail lines and the unknown products transported, a potential exists for the release of hazardous substances. Further investigation is planned.
AOC 62	Other areas of concern - Other discharge area	Inactive RR Spur- Between Canning Plant and QC Lab	Undetermined	PA	10/9/2015			Soil	Metals + PAHs			Remediation Standards	Ingestion/Dermal						Soil investigations conducted near the Inactive Railroad Spur indicate that contaminant concentrations are above applicable NJDEP standards. No further investigation is planned.
AOC 63	Other areas of concern - Other discharge area	Former Rail Lines (Vacant Land North)	Undetermined	PA	10/9/2015			Soil	Metals + PAHs	PCBs		Remediation Standards	Ingestion/Dermal						Soil investigations conducted near the Former Rail Lines along the northern portion of the property indicate that contaminant concentrations are above applicable NJDEP standards. Further investigation is planned.

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AOC 64	Other areas of concern - Other discharge area	Inactive RR Spur- Administration Building	Undetermined	PA	10/9/2015			Soil	VO+ Metals			Remediation Standards	Ingestion/Dermal						Soil investigations conducted near the Inactive Railroad Spur indicate that contaminant concentrations are above applicable NJDEP standards. Further investigation is planned.
AOC 65	Other areas of concern - Other discharge area	Active RR Spur Between 1st & 2nd Tankfields	Undetermined	No Sampling Trigger	10/9/2015			Soil	VO + BN			Remediation Standards							The active rail spur was observed extending to the southwest between the First and Second Tankfields. No staining, stressed vegetation, or evidence of a release of hazardous substances was observed. Due to the active status of the rail spur, no further investigation is planned at this time.
AOC 66	Other areas of concern - Other discharge area	RR Spur Between Along 4th & 2nd Reserve Tankfields	Undetermined	No Sampling Trigger	10/9/2015			Soil	VO+ Metals			Remediation Standards							The active rail spur was observed between the current Fourth Tankfield and No. 1 Landfarm and between the Second Reserve Tankfield and Laydown Yard. No staining, stressed vegetation, or evidence of a release of hazardous substances was observed during the site visit. Due to the active status of the rail spur, no further investigation is planned at this time.
AOC 67	Other areas of concern - Underground piping including industrial process sewer	Colonial Pipeline	Undetermined	No Sampling Trigger	10/9/2015			Soil	VO+ Metals			Remediation Standards							The area in the vicinity of the pipeline was vegetated with grasses and was marked with numerous signs that indicated the presence of the pipeline. Various wood boards and dead vegetation debris were observed along the outer edges of the pipeline. No staining, stressed vegetation, or evidence of a release of hazardous substances was observed. No further investigation is planned at this time.
AOC 68	Other areas of concern - Underground piping including industrial process sewer	Buckeye Pipeline	Undetermined	No Sampling Trigger	10/9/2015			Soil	VO + BN			Remediation Standards							Portions of an above ground and underground pipeline were observed extending from the vicinity of the intersection of Avenue B and Second Street southwest, then west, then north through the property. The pipeline is owned by Buckeye Partners, L.P. and is used to transport petroleum and refined products. The pipeline leads to an area just east of the QC Laboratory (AOC-19). No staining, stressed vegetation, or evidence of a release of hazardous substances was observed during the site visits. No further investigation is planned at this time.
AOC 69	Other areas of concern - Underground piping including industrial process sewer	Williams Pipeline	Undetermined	No Sampling Trigger	10/9/2015			Soil	VO + BN			Remediation Standards							Portions of a pipeline were observed extending along the southeast side of the Aeration Basin (AOC-5) and along the southwest side of the Retention Pond (AOC-12). The pipeline markers indicated that the pipeline was owned and operated by Transcontinental Gas Pipe Line Corporation; however, the pipeline was later identified as the Williams Pipeline. No staining, stressed vegetation, or evidence of a release of hazardous substances was observed during the site visits. No further investigation is planned at this time.
AOC 70	Other areas of concern - Underground piping including industrial process sewer	Spectra (Former Texas Eastern) Pipeline 10' abandoned line	Undetermined	No Sampling Trigger	10/9/2015			Soil	VO + BN			Remediation Standards							Portions of a pipeline were observed extending from the Arthur Kill to the northwest through the property. The pipeline was identified as an abandoned pipeline owned by Spectra Energy. The pipeline leads to a portion of the property that is fenced and locked located west of the MTBE Unit. The fenced area was labeled as the Spectra Energy Hess Plant Valve Site. No staining, stressed vegetation, or evidence of a release of hazardous substances was observed during the site visits. No further investigation is planned at this time.
AOC 71	Other areas of concern - Underground piping including industrial process sewer	Spectra (Former Texas Eastern) Pipeline 12' line	Undetermined	No Sampling Trigger	10/9/2015			Soil	VO + BN			Remediation Standards							Portions of a pipeline were observed extending from the Arthur Kill to the northwest through the property. The pipeline is owned by Spectra Energy and is used to transport petroleum and refined products via an underground pipeline from the docks along the Arthur Kill. The pipeline leads to a portion of the property that is fenced and locked located west of the MTBE Unit. The fenced area was labeled as the Spectra Energy Hess Plant Valve Site. No staining, stressed vegetation, or evidence of a release of hazardous substances was observed during the site visits. No further investigation is planned at this time.
AOC 72	Other areas of concern - Underground piping including industrial process sewer	Colonial Pipeline (abandoned)	Undetermined	No Sampling Trigger	10/9/2015			Soil	VO + BN			Remediation Standards							A portion of a large pipeline was observed extending from the south dock on the Arthur Kill through the property. The pipeline is an abandoned Colonial Pipeline. No staining or evidence of a release of hazardous substances was observed during the site visit. No further investigation is planned at this time.
AOC 73	Other areas of concern - Other discharge area	TEL Building (North)	Undetermined	PA	10/9/2015			Soil	VO+ Metals			Remediation Standards							Soil investigations conducted near the Tetraethyl Lead (TEL) Building (North) indicate that contaminant concentrations are below applicable NJDEP standards. No further investigation is planned at this time.
AOC 74	Other areas of concern - Other discharge area	TEL Building (South)	Undetermined	PA	10/9/2015			Soil	VO+ Metals			Remediation Standards							Soil investigations conducted near the Tetraethyl Lead (TEL) Building (South) indicate that contaminant concentrations are below applicable NJDEP standards. No further investigation is planned at this time.
AOC 75	Other areas of concern - Other discharge area	Former Canning Plant AST	Undetermined	PA	10/9/2015			Mixed Media	VO + BN			Remediation Standards							Soil investigations conducted near the three large ASTs and four smaller ASTs located near the Former Canning Plant indicate that contaminant concentrations are below applicable NJDEP standards. No further investigation is planned at this time.
AOC 76	Storage tank and appurtenance - Above ground storage tank	Former Canning Plant Loading Area	Undetermined	PA	10/9/2015			Mixed Media	VO + BN			Remediation Standards							Based on the historic use of the former tankfield, a potential exists for a release of hazardous substances. Further investigation is planned.
AOC 77	Storage tank and appurtenance - Above ground storage tank	Former Petroleum Solvents AST	Undetermined	PA	10/9/2015			Mixed Media	VO			Remediation Standards							Soil investigations conducted near the tankfield consisting of six ASTs and a raised berm indicate that concentrations are above applicable NJDEP standards. Further investigation is planned.

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AOC 78	Drainage system and area - Surface water body	Administration Building Drainage Channel	Undetermined	PA	10/9/2015			Mixed Media	VO			Remediation Standards							Based on the historic use of the former drainage ditch by a potential chemical manufacturer, a potential exists for a release of hazardous substances. Further investigation is planned.
AOC 79	Drainage system and area - Drainage swale and culvert	Former Drainage Swale/ Ponding	Undetermined	PA	10/9/2015			Mixed Media	BN			Remediation Standards							Based on the historic use of the former drainage ditch by a potential chemical manufacturer, a potential exists for a release of hazardous substances. Further investigation is planned.
AOC 80	Other areas of concern - Other discharge area	Former Crude Topping Unit	Undetermined	PA	10/9/2015			Mixed Media	VO + BN	Metals		Remediation Standards	Ground Water						Soil and groundwater investigations conducted at the Crude Topping Unit indicate that contaminant concentrations are above applicable NJDEP standards. Further investigation is planned.
AOC 81	Other areas of concern - Other discharge area	Former Marine Terminal Building	Undetermined	No Sampling Trigger	10/9/2015			Soil	VO			Remediation Standards							Based on the review of the historic aerials, one rectangular-shaped building existed on the property south of TK-1201 from between 1957 and 1963 until some time between 1972 and 1979. The rectangular-shaped building was identified as the former Marine Terminal building. No evidence of the former building was observed during the PA site visit on January 13, 2014. No further investigation is planned at this time.
AOC 82	Discharge and disposal area - Incinerator	Former Incinerator Building	Undetermined	PA	10/9/2015			Soil	VO+ Metals			Remediation Standards	Ingestion/Dermal						Soil investigations at the Former Incinerator Building indicate that contaminant concentrations are above applicable NJDEP standards. Further investigation is planned.
AOC 83	Other areas of concern - Other discharge area	Historic Flare Towers	Undetermined	No Sampling Trigger	10/9/2015			Soil	BN + Metals			Remediation Standards							Based on the review of the historic aerials, two flare towers were observed on the 1963 through 1980 aerial photographs, one east and one west of the Detention Basin. No evidence of the former flare towers was observed during the site visit conducted on January 20, 2014. No further investigation is planned at this time.
AOC 84	Storage tank and appurtenance - Above ground storage tank	Former Tank N. of Admin Building	Undetermined	PA	10/9/2015			Soil	Metals			Remediation Standards	Ingestion/Dermal						Soil investigations at a former tank location north of the Administration Building indicate that contaminant concentrations are above applicable NJDEP standards. No further investigation is planned.
AOC 85	Storage tank and appurtenance - Above ground storage tank	Marine VRU/TK 4701 & TK 4801	Undetermined	PA	10/9/2015			Soil	BN			Remediation Standards	Ingestion/Dermal						Soil investigations conducted at the Marine Vapor Recovery Unit indicate that contaminant concentrations are above applicable NJDEP standards. Further investigation is planned.
AOC 86	Storage and staging area - Storage pad and area	Truck Rack VRU	Undetermined	PA	10/9/2015			Mixed Media	VO + BN			Remediation Standards							Several pieces of equipment and plastic drums were observed on the northeast exterior of the Day Tankfield (AOC-57). The equipment and chemicals stored were part of the Truck Rack Vapor Recovery Unit (VRU), which is used for the recovery and separation of olefins. Based on the types of chemicals used, a potential exists for a release of hazardous substances. Further investigation is planned.
AOC 87	Other areas of concern - Other discharge area	Flare Knock Out Drum	Undetermined	PA	10/9/2015			Soil	Metals			Remediation Standards	Ingestion/Dermal						Soil investigations conducted at the Flare Knock Out Drum area indicate that contaminant concentrations are above applicable NJDEP standards. No further investigation is planned.
AOC 88	Other areas of concern - Discolored area or spill area	Compressor Building	Undetermined	PA	10/9/2015			Soil	VO + BN	Metals	EPH	Remediation Standards	Ingestion/Dermal						Soil investigations conducted at the Air Compressor Building area indicate that contaminant concentrations are above applicable NJDEP standards. Further investigation is planned.
AOC 89	Other areas of concern - Discolored area or spill area	Cracking Tower	Undetermined	PA	10/9/2015			Soil	VO + BN	Metals		Remediation Standards	Ingestion/Dermal						Soil investigations conducted at the Cracking Tower area indicate that contaminant concentrations are above applicable NJDEP standards. Further investigation is planned.
AOC 90	Storage and staging area - Storage pad and area	Drum Compound (QC Lot)	No	RAR	1/22/2018			None				Remediation Standards							The drum storage compound is located on the QC lab property and is being addressed in conjunction with AOC 19. Soil investigations conducted at the drum storage compound indicate that beryllium was detected above IGW. However, concentrations are consistent across the entire QC lab property. Compliance averaging is being used to address the IGW pathway for beryllium and no further investigation is required.
AOC 91	Storage and staging area - Storage pad and area	North Dock Yard	Undetermined	No Sampling Trigger	10/9/2015			Soil	BN + Metals			Remediation Standards							Based on the review of the historical aerials, the North Dock Yard was covered with gravel between 1986 and 1995 and has been used for equipment storage since 1979. Based on the observations made during the site visit, no further investigation is planned.
AOC 92	Storage tank and appurtenance - Above ground storage tank	TK- 701A and TK-701B	Undetermined	No Sampling Trigger	10/9/2015			Soil	Other			Remediation Standards							No staining or evidence of a release was observed in the vicinity of the ASTs; however, the area in the vicinity of the ASTs was snow covered. No further investigation of the Fresh Acid Unloading Area is warranted at this time as it is located in the vicinity of the Alkylation Neutralization Basin (AOC-25), in which further investigation is planned.
AOC 93	Storage tank and appurtenance - Above ground storage tank	Waste Water Treatment - Tankfield	Yes	PA	10/9/2015			Soil	VO + BN			Remediation Standards							The Waste Water Treatment Tankfield is located within an area in which previously conducted groundwater sampling has revealed LNAPL contamination. Further investigation is planned.
AOC 94	Storage tank and appurtenance - Above ground storage tank	Waste Water Treatment- TK 1810	Yes	PA	10/9/2015			Soil	BN			Remediation Standards							The Oxidation Tower is located within an area in which previously conducted groundwater sampling has revealed LNAPL contamination. Further investigation is planned.
AOC 95	Storage and staging area - Storage pad and area	Waste Water Treatment- Storage Area	Yes	PA	10/9/2015			Ground Water	VO			Remediation Standards							The concrete storage area is located within an area in which previously conducted groundwater sampling has revealed LNAPL contamination. Further investigation is planned.
AOC 96	Other areas of concern - Other discharge area	Boiler Area	Undetermined	PA	10/9/2015			Soil	Metals			Remediation Standards	Ingestion/Dermal						Soil investigations conducted near the Boiler Area indicate that contaminant concentrations are above applicable NJDEP standards. No further investigation is planned.

Case Name:

Hess Corporation - Former Port Reading Complex (HC-PR)

PI #:

006148

IMPORTANT:

1) Do not delete or copy and paste across multiple columns because it can disrupt hidden equations.

2) If pasting from a Word document, use the Paste option: **Match Destination Formatting**

3) If the text turns **red** you have exceeded the character limit for that column

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AOC ID	AOC Type	AOC Description	Confirmed Contamination	AOC Status	Status Date	Incident #	DEP AOC Number	Contaminated Media	Contaminants of Concern	Additional Contaminants of Concern	Additional Contaminants of Concern	Applicable Remediation Standard	Exposure Route	Additional Exposure Route	RA Type	Additional RA Type	Additional RA Type	Was an Order of Magnitude Evaluation Conducted?	Activity
AOC 97	Storage tank and appurtenance - Piping, above/below ground pump station, sump/pit	Above Ground Piping Runs			10/9/2015			Soil	VO + BN			Remediation Standards							Aboveground piping is located through the facility and is addressed in the area where the piping is found.
AOC 98	Drainage system and area - Storm water detention pond and fire pond	Storm & Process Sewers -	Undetermined	RI	10/9/2015			Soil	VO + BN			Remediation Standards							Storm and process sewers are located throughout the facility and are addressed in the areas where the sewers are found.
AOC 99	Other areas of concern - Hazardous substance storage or handling area	Chemical Storage Adjacent to Cooling Water Tower	Undetermined	RI	10/9/2015			Mixed Media	VO+ Metals			Remediation Standards	Ground Water						Soil and groundwater investigations conducted near the Chemical Storage Area for the Cooling Water Tower indicate that contaminant concentrations are above applicable NJDEP standards. Further investigation is planned.
AOC 100	Storage and staging area - Storage pad and area	Laydown Yard	Yes	RI	10/9/2015			Soil	BN + Metals	PCBs		Remediation Standards	Ingestion/Dermal						Soil investigations conducted near the fenced storage area known as the Laydown Yard indicate that contaminant concentrations are above applicable NJDEP standards. Further investigation is planned.
AOC 101	Other areas of concern - Other discharge area	Canning Plant	Undetermined	RI	10/9/2015			Mixed Media	VO + BN			Remediation Standards							Based on the historical activities conducted at the Former Canning Plant (currently used for storage), a potential exists for a release of hazardous substances. Further investigation is planned.
AOC 102	Other areas of concern - Open area away from production operations	Vacant Land (South)	Undetermined	RI	10/9/2015			Mixed Media	VO + BN			Remediation Standards							Based on the historic excavation and/or filling events and the numerous pieces of equipment, vehicles, and storage containers stored on the property, a potential exists for a release of hazardous substances. Further investigation is planned.
AOC 103	Other areas of concern - Other discharge area	Fire Pits/Fire Areas	Yes	RI	10/9/2015			Soil	BN + Metals			Remediation Standards	Ingestion/Dermal						Soil investigations conducted near four depressed areas used as Fire Pits for training purposes indicate that contaminant concentrations are above applicable NJDEP standards. Further investigation is planned.
AOC 104	Drainage system and area - Surface water body	North Drainage Ditch	Undetermined	RI	10/9/2015			Mixed Media	VO + BN			Remediation Standards							Based upon the observations made during the site visit, the historical aerials, and the discharges received by the North Drainage Ditch, further investigation is planned.
AOC 105	Other areas of concern - Other discharge area	North/South Docks	Undetermined	No Sampling Trigger	10/9/2015			None	Not Applicable			Remediation Standards							No evidence of a release of hazardous substances was observed in the vicinity of the docks. No further investigation is planned at this time.
AOC 106	Other areas of concern - Other discharge area	Abandoned Pilings	Undetermined	No Sampling Trigger	10/9/2015							Remediation Standards							No evidence of a release of hazardous substances was observed during the site visit in the vicinity of the wood pilings. No further investigation is planned at this time.
AOC 107	Storage and staging area - Storage pad and area	Drum Storage Compound	Undetermined	RI	10/9/2015			Soil	Metals			Remediation Standards	Ingestion/Dermal						Soil investigations conducted near two fenced-in Drum Storage Compound areas indicate that contaminant concentrations are above applicable NJDEP standards. No further investigation is planned.
AOC 108	Other areas of concern - Other discharge area	RR- Terminal Building	No	No Sampling Trigger	10/9/2015			None	Not Applicable			Remediation Standards							No evidence of the former buildings was observed during the PA site visit conducted on January 17, 2014. No staining or evidence of a release of hazardous substances was observed in the vicinity of the former buildings locations. No further investigation is planned at this time.
AOC 109	Drainage system and area - Dry well and sump	Truck Rack Sump	Undetermined	RI	10/9/2015			Mixed Media	VO + BN			Remediation Standards							Based on the site observations of a sump identified as the Truck Rack Sump, a potential exists for a release of hazardous substances. Further investigation is planned.
AOC 110	Other areas of concern - Other discharge area	Day Tankfield Oil/Water Separator	Undetermined	RI	10/9/2015			None	Not Applicable			Remediation Standards							Based upon the site observations and the discharges received, a potential exists for the release of hazardous substances. Further investigation is planned.
AOC 111	Storage and staging area - Storage pad and area	Chemical Storage Area	Undetermined	RI	10/9/2015			None	Not Applicable			Remediation Standards							Based upon the type of chemicals previously stored on the concrete pad, a potential exists for a release of hazardous substances. Further investigation is planned.
AOC 112	Other areas of concern - Underground piping including industrial process sewer	Unknown Pipeline Along Avenue B	Undetermined	RI	10/9/2015			None	Not Applicable			Remediation Standards							Based upon the close proximity of the unknown pipeline to the active pipelines in the area, further investigation is planned.
AOC 113	Other areas of concern - Other discharge area	2nd Reserve Tankfield Oil/Water Separator	Undetermined	RI	10/9/2015			None	Not Applicable			Remediation Standards							Based upon the site observations and the discharges received, a potential exists for the release of hazardous substances. Further investigation is planned.
AOC 114	Storage and staging area - Storage pad and area	Waste Water Treatment- Additive Area	No	No Sampling Trigger	10/9/2015			None	Not Applicable			Remediation Standards							No staining or evidence of a release was observed in the vicinity of the drums, totes, and pallets. Based upon the site observations, no further investigation is planned at this time.
AOC 115	Storage tank and appurtenance - Above ground storage tank	Diesel Powered Pump	No	No Sampling Trigger	10/9/2015			None	Not Applicable			Remediation Standards							No staining or evidence of a release of hazardous substances was observed in the vicinity of the pump. No further investigation is planned at this time.
AOC 116	Other areas of concern - Discolored area or spill area	Diesel Powered Emergency Generator	No	PA/SI	10/9/2015			None	Not Applicable			Remediation Standards							Soil investigations conducted near a diesel-powered emergency generator located near the South Dock area indicate that contaminant concentrations are below applicable NJDEP standards. No further investigation is planned.
AOC 117	Other areas of concern - Discolored area or spill area	Diesel Powered Emergency Generator.	No	PA/SI	10/9/2015			None	Not Applicable			Remediation Standards							Soil investigations conducted near a diesel-pwered emergency generator near Millwright's Shop indicate that contaminant concentrations are below applicable NJDEP standards. No further investigation is planned at this time.

# **ATTACHMENT 2**

## **SUMMARY OF HISTORIC SPILLS**



**Attachment 2**  
**Summary of Historic Spills**  
**Hess Corporation - Port Reading Refinery**  
**750 Cliff Road**  
**Port Reading, Middlesex County, New Jersey**

Year of Release	Date of Discharge	NJDEP Case #	Location / Source	Material/Amount Released	Description of Incident	Historic Spill ID
1969	10/30/1969	Not Reported	Tank 1214	8,000,000	Tank Failure	HS-1
1986	12/13/1986	86-12-13-1042	Terminal	100 Gallons	Spill unleaded gasoline	N/A
1986	12/23/1986	86-12-23-1451	Terminal	25 Gallons	Spill-Gasoline	N/A
1987	1/20/1987	87-01-20-0948	Unknown	0	Liquid-Spill-Diesel Fuel. Contamination of water.	N/A
1987	2/11/1987	87-02-11-1613	Unknown	Unknown	Spill-Liquid-Oil Fuel & Kerosene, Oil Fuel #2	N/A
1987	4/22/1987	87-04-22-1923	Unknown	10-15 Gallons	Spill-Gasoline (Incident Name Furman Stoop)	N/A
1987	6/3/1987	87-06-03-2107	Unknown	30 Gallons	Spill-Liquid-#2 Fuel Oil / Spill shutdown of pumps	N/A
1987	8/19/1987	87-08-19-0502	Unknown	100 Gallons	Spill-Liquid-#2 Oil	N/A
1987	11/24/1987	87-11-24-1143	Unknown	1/2 ACRE	Spill-Liquid- Oil Ground Contamination (1/2 acre)	N/A
1988	5/24/1988	88-05-24-1606	Unknown	Not Reported	Spill- Sulfuric Acid	N/A
1988	7/13/1988	88-07-13-1534	2nd Reserve	10 Gallons	Spill-Liquid- Oil Fuel #2	N/A
1988	7/20/1988	88-07-20-0418	Unknown	Water, Waste	Spill of an Unknownknown amount of Waste	N/A
1988	8/12/1988	88-08-12-1137	Unknown	500,000/ Water	Spill - Noted as Water/non-hazardous	N/A
1988	9/4/1988	88-09-05-0900	Tank 1911	50,000 Gallons-Process Water	Overflow of equalization tank 1911 to secondary containment. On September 4, 1988 to September 5, 1988, a 2' line skim line was opened on Tank 1911 allowing water to flow into secondary containment. Process Water, Water (non-hazardous) Spill Contained. NJPDES Incident.	N/A
1989	4/10/1989	89-04-10-1817	Unknown	Unknown	LUST	N/A
1989	5/21/1989	89-05-21-0543	Unknown	Unknown	Spill-Liquid-Oil Fuel	N/A
1989	8/25/1989	89-08-25-1559	Unknown	1 Gallons -liquid	Spill, Equipment upset	N/A
1989	11/15/1989	89-11-15-1637	Unknown	Unknown	Liquid-Oil Fuel #4 / L.U.S.T.	N/A
1990	3/14/1990	90-03-14-1150	Degassing Drum	1 Gallons/disulfide oil	Disulfide oil was pressured to the degassing drum. A strong odor was evident in the Port Reading community, Upon inspection of the refinery it was found to come from 1 Gallons of disulfide oil released near the refinery's wet gas scrubber. The affected area of the site was treated with a biological deodorizer (Liquid Alive) and the area was flushed with water that was later treated at the Advanced Wastewater Treatment Plant. PR Fire Dept., and Health Dept. onsite for inspection.	N/A
1990	4/11/1990	90-04-11-1526	Unknown	Crude Oil	Notice of Violation (NOV) Second Reserve Terminal (NOV# 90-04-11-1526). The presence of hydrocarbon was discovered and reported to the NJDEP. Excavated soil was stored on plastic and the soil was sampled for disposal characterization. Preliminary fingerprint analysis of the hydrocarbon indicate the source of the crude oil to be from the Tank #1214 tank (8,000,000 Gallons crude oil tank) failure which occurred October 30, 1969.	N/A
1990	4/25/1990	90-04-25-0021	Tank 7934	840-1,680 Gallons/Gasoline	Corrosion of a bottom plate weld seam caused unleaded gasoline to leak. The tank rests on a concrete base, preventing vertical migration of product. Absorbent material was placed around the tank bottom/concrete base to contain and collect product. The tank was emptied by pumping remaining product into a nearby tank. Portions of still floor plates were replaced and bottom inner walls coated with epoxy paint to prevent corrosion.	HS-2(B)
1990	5/24/1990	90-05-24-1030	FCC Unit Turnaround	1 Gallons LNAPL observed in excavation	Free phase hydrocarbon was discovered while excavating a support structure (concrete footings) for a crane which will was to be used in the turnaround of the FCC Unit. A sample of oil was sent to Hess Laboratories, no source was conclusively identified, however a sewer line was uncovered during the excavation and is noted as a probable source, and the release appears to part of a past event.	N/A
1990	8/29/1990	90-08-29-1617	UST 012 and UST 014	Waste Oil, #3 Heating Oil	During UST removal, free product was observed in the tank excavations. UST 012 - 500 Gallons waste oil tank (approximately 6 Gallons of oil removed from the excavation); UST 014 - 2,000-Gallons No. 2 Fuel Oil tank (less than 1/2 Gallons released).	N/A
1991	1/28/1991	91-1-28-1002-17	Admin Build- Frozen Valve	10-50 Gallons of No.2 fuel oil	No.2 fuel oil used to heat the administration building was stored in three 500-Gallons ASTs. Water collected in a drain valve on the south tank and froze. As temperatures rose, the ice melted and oil leaked onto the ground and into a drainage ditch by the Conrail Tracks. A vacuum truck was dispatched to cleanup the spill. Absorbent pads were also used. The valve was replaced and containment for the tanks was installed.	HS-3
1991	1/29/1991	91-1-29-1048-46	Unknown	10 Gallons -Fuel Oil #2	Line leak - material is contained and being cleaned up	N/A
1991	4/26/1991	91-4-26-1742-24	API	80-90 Gallons	Spill-Liquid-Heating Oil- Spill due to heavy rain fall causing API Separator to overflow. Oil is contained in catch basin, cleanup in progress.	N/A
1991	5/14/1991	91-05-14-1356-45	Colonial Pipeline	Unknown -Petroleum Hydrocarbon	Petroleum Hydrocarbons were observed in excavation along Colonial Pipeline Right-of-Way. The oily soil was encountered during the removal and replacement of an unused block valve with a spool piece on a section of their pipeline located near the refining facility wastewater treatment plant.	N/A
1991	9/25/1991	91-9-25-1014-00	API overflow to Smith Creek	500-700 Gallons/ light oil	As a result of heavy rainfall, the API separator overflowed. Light oil flowed into Smith Creek. Oil was contained and no navigable waters were affected. Flow of oil was diked with sand and a spill boom was deployed. Saturated sweep material containment area was erected. Vacuum trucks from Hess and Ken's Marina were dispatched to site for cleanup. Health Department was contacted and was satisfied with the cleanup.	HS-4(A)
1991	12/30/1991	91-12-30-1527-20	Unknown	42 Gallons -Oil JP-A	Hose crack - material was contained and cleaned up	N/A

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**750 Cliff Road**  
**Port Reading, Middlesex County, New Jersey**

Year of Release	Date of Discharge	NJDEP Case #	Location / Source	Material/Amount Released	Description of Incident	Historic Spill ID
1991	8/22/1991	91-08-22-1911-24	Unknown - Tank 017	Floating Oil -Unknown	A film of free floating oil was detected on the standing water surface within the excavation of the removal of a non-industrial, non-residential UST. (capacity estimated as 2,500 Gallons-heating fuel oil)	N/A
1992	1/17/1992	92-1-17-1447-31	Tank 1220 Overfill	Approximately 1,260-Gallons of cat feed	Main overfill gauge indicated a "high " alarm but gauge failed on Tank 1220 during transfer operations from the C/T NY. Cat feed released to secondary containment area. Containment actions were implemented at Tank 1220 to minimize area potentially impacted by the release. Approximately 340-yards of impacted soils were disposed of at an approved treatment facility.	HS-5(A)
1992	6/3/1992	92-6-3-1318-27	Leak from recovered oil line at Tank 7904	40-50 Gallons/ FCC Feedstock & No. 2 Oil	The recovered oil line was inadvertently isolated from thermal/pressure relief protection. The oil in the line was heated by steam tracing, resulting in a buildup of pressure on the line causing flange leakage and line failure. A vacuum truck was dispatched to pump out the recovered oil line and stop the discharge. Approximately 20 yds. of crushed stone was collected and disposed of at an approved treatment facility. The line was inspected and repaired as needed.	HS-6
1992	10/23/1992	92-10-23-1427-29	Unknown	3-5 Gallons -Fuel Oil #2	Product spilled under rack #4 due to operator error - in the process of being cleaned up	N/A
1992	10/28/1992	92-10-28-1052-59	Alky Unit- corroded sewer lines	Unknown	During video inspection of all sewer systems, corrosion of concrete sewer box was observed. This may have resulted in past discharges to surrounding soils. Use of the section of the affected sewer system was discontinued, affected areas repaired/replaced as needed.	HS-7
1993	1/28/1993	93-01-28-1023	Unknown	Unknown	UST- NFA Issued	N/A
1993	3/8/1993	93-3-8-1010-00	Unknown	5 Gallons / #2 Oil	Spill-Liquid-Oil Fuel #2- Material is contained and being cleaned up, cause of spill being investigated	N/A
1993	4/30/1993	93-4-30-1638-14	Tank 1176- leak from bottom	84 Gallons/ No 2 oil.	Corrosion of Tank 1176 floor plates resulted in stored No. 2 fuel oil seeping out of tank between concrete support base ring and bottom sketch plate of storage tank. The tank was isolated and 6" of water was pumped into the tank to float the product and to stop the discharge. The tank contents were transferred to another tank. Tank 1176 was taken out of service until repairs could be completed.	HS-8
1993	8/23/1993	93-8-23-0952-57	Unknown	20 Gallons -Heavy Oil	Leak in pipe - material was contained and cleaned up	N/A
1993	10/21/1993	93-10-21-1435-21	TLR- Leak from underground 6" dia. product transfer pipe	255 Gallons/gasoline	After a heavy rainfall, gasoline was detected on a concrete turnaround area at the facility truck loading rack. A inspection of the oily water sewer box in the vicinity indicated that a mixture of gasoline and water drained into the sewer box from the subsurface. Gasoline transfer was discontinued and the affected pipe section isolated. A vacuum truck was used at the sewer box while cleanup of the gasoline on the concrete surface was completed. No surface water was impacted, and there was no off-site impact.	HS-10(A)
1994	1/6/1994	94-1-6-2354-25	Unknown	10 Gallons -Crude Oil	Rupture in barge hose - material contained and will be cleaned up by Hess	N/A
1994	1/28/1994	94-01-28-0737-38	Tank 1218- leak from floating roof drain	1,000 Gallons/ gasoline	During heavy rainfall, the roof drain valve of Tank 1218 was open, as per operating procedures, preventing the accumulation of water which could sink the roof. 2 - 3 roof drain swivel joints failed, allowing stored product to enter the roof drainpipe and drain to the tank field secondary area. The tank field secondary containment area was ice covered and contained several inches of accumulated rainwater at the time of discharge. Product floating on the contained water was recovered using a vacuum truck. Product did not contact the secondary containment area due to the water and ice, therefore no soil samples were collected.	HS-11
1994	4/26/1994	94-4-26-1139-52	Tank 1220- leak from Weld on Tank (8 mil capacity)	84 Gallons/ cat feed	Apparent corrosion of a small section of the storage tank floor to shell weld resulted in a discharge of feedstock to the tank field secondary containment area. The discharged product minimally penetrated the containment soils. Water was pumped into the storage tank to float the product above the corrosion area and terminate the discharge. The contents of the tank were transferred to another tank. The affected soils were removed and disposed of at an approved treatment facility.	HS-5(B)
1994	5/20/1994	94-5-20-1730-00	N/A	N/A	Case Transfer	N/A
1994	8/9/1994	94-8-9-1543-00	Unknown	2 Gallons	Spill-Liquid-Oil Fuel #2- SPILL CAUSED BY BURP IN HOSE. CLEAN UP WAS COMPLETED BY HESS. Contamination of Water	N/A
1994	10/3/1994	94-10-3-0819-31	Leak from recovered oil line at Tank 7914 (Spill to Secondary Containment Area)	25 Gallons/ recovered oil	Recovered oil leaked from a corroded section of 3-inch diameter aboveground insulated transfer pipe near Tank 7914. The leaking pipe section was isolated, terminating the product release. A vacuum truck was used to remove residual petroleum from the pipe. Affected soils were removed and disposed of at an approved treatment facility. Approximately one 30-foot section of pipe was replaced and hydro tested prior to recommissioning. Small discharge of recovered oil to the tank field secondary containment area.	HS-9(B)
1994	10/13/1994	94-10-13-1053-23	Unknown	15 Gallons -Heavy Oil	Unknown cause spill - material is contained and cleaned up	N/A
1995	2/2/1995	95-2-2-0626-27	Unknown	< 1 Gallons/ Jet-A	Spill-Liquid-Oil Jet-A-Leaky flange caused spill. RP handling cleanup	N/A
1995	3/7/1995	95-3-7-0055-00	Unknown	Hydrogen Sulfide, Liquid	Spill due to leak in 2" pipe - cleanup in progress	N/A
1995	3/7/1995	95-03-07-0055-00	Tank 7908- leak from 2" dia. skimmed oil transfer line (Spill to Secondary Containment Area)	100 Gallons/ recovered oil	Corrosion of 2-inch diameter aboveground oil skimmer transfer line from a process water storage tank resulted in a discharge of recovered oil to the tank field secondary containment area. The leaking pipe section was isolated, terminating the product release. A vacuum truck was used to remove residual petroleum from the pipe. Affected soils were removed and disposed of at an approved treatment facility. Approximately one 30-foot section of pipe was replaced and hydro tested prior to recommissioning.	HS-12(A)
1995	3/18/1995	95-3-18-1523-44 (a.k.a. 95-3-18-152341)	Tank 7914- Leak from slurry oil line adjacent to tank (Spill to Secondary Containment Area)	50-100 Gallons-Oil Slop or slurry oil	An 8-inch diameter aboveground slurry oil transfer line cracked between two 45° stub-out flanges spraying slurry oil onto the secondary containment wall and the shell of Tank 7914. The oil in the line was heated by steam tracing, resulting in a buildup of pressure on the line causing line failure. The pipe section was isolated and steam tracing was secured once the discharge was discovered. Impacted soils, crushed stone, and absorbent material was removed and disposed of at an approved treatment facility. One 12-foot section of transfer pipe was replaced, eliminating the 45° stub-outs. Each pressure relief valve on the slurry oil transfer line was inspected and either cleaned or replaced if plugged.	HS-9(C)
1996	4/3/1996	96-4-3-1527-36	QC Lab	1 Qt	Spill-Liquid-Waste Industrial- Lab tech testing sample of storm water in cylinder. Cylinder broke, causing spill, cleanup completed	N/A

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**Hess Corporation - Port Reading Refinery**  
**750 Cliff Road**  
**Port Reading, Middlesex County, New Jersey**

Year of Release	Date of Discharge	NJDEP Case #	Location / Source	Material/Amount Released	Description of Incident	Historic Spill ID
1997	8/16/1997	97-8-16-0133-57	Sour Water Stripper	NONE	Equipment maintenance on sour water stripper - non-emergent situation	N/A
1997	10/10/1997	97-10-10-2359-11	Cat feed pump	undetermined	A fire was detected in the facility's main cat feed/ charge pump. The feed was terminated and the fire extinguished. An inspection of the fire site revealed a minor spillage of oil into the pump pad containment area. All liquid was quickly cleaned up from the containment area and transferred to the facility slop oil tank for eventual processing. Generated oil and debris were disposed of at an approved treatment facility.	HS-12(C)
1997	11/7/1997	97-11-7-1647-46	VRU Containment Area	50 Gallons (minimum) -gasoline	Liquid gasoline was observed being discharged from the Port Reading Rack VRU vent pipe. The VRU was shut down and the discharged ended. An inspection of the spill site immediately afterward revealed a discharge of gasoline into the VRU containment area. All liquid gasoline was quickly cleaned up from the containment area and transferred to the facility slop oil tank for eventual reprocessing. All contaminated soil and debris recovered were disposed of at an approved treatment facility.	HS-13
1998	4/2/1998	98-04-02-0944-48	Tank 1911 (Wastewater transferred to secondary containment area)	100,000 Gallons/ wastewater	Excess wastewater from the refinery's wastewater equalization tank, Tank 1911, was temporarily transferred to the adjacent secondary containment system. This measure was taken to avoid overflowing and damaging the tank. The wastewater was pumped back into the Tank 1911 once tank space became available.	HS-14
1999	6/17/1999	99-06-17-1531-33	Unknown	Unknown	MATERIAL IS DRIPPING FROM A WELD IN THE PIPELINE, Contamination of Water, Land	N/A
1999	9/8/1999	99-09-08-0912-31	Unknown	Not Reported	HOSE FAILED DURING TRANSFER FROM A TANKER CAUSING SPILL.CLEAN UP BEING DONE	N/A
2000	5/14/2000	00-05-14-2106-28	Aeration Basins (Wastewater Treatment Unit)	50 Gallons/ petroleum impacted wastewater	During a routine inspection, the wastewater operator identified that the lift sump X-1908 was overflowing. The re-circulation water was shut off immediately. A vacuum truck was dispatched to enhance free product recovery. A shallow trench along the fence line was installed. All water and product that entered the trench was recovered using a vacuum truck. All impacted soil was disposed of at an approved treatment facility.	HS-15
2000	6/27/2000	00-06-27-2213-37	Unknown	Unknown	Information redacted due to data corruption causing reporting status errors.	N/A
2000	6/27/2000	00-06-27-1224-37	Unknown	Unknown	Information redacted due to data corruption causing reporting status errors.	N/A
2000	12/26/2000	00-12-26-1950-59	Unknown	Unknown	Information redacted due to data corruption causing reporting status errors.	N/A
2002	3/26/2002	02-03-26-1530-26	TK 7906	Unknown	Soil Contamination at Tk 7906 under tank bottom soil contamination. Cleanup has been done.	N/A
2002	5/28/2002	02-05-28-1640-14	Tank 1210 - overfill (Spill to Secondary Containment Area)	420 Gallons/ Algerian Resid (FCC feedstock)	While receiving a shipment of Algerian Resid from vessel M/V Corcovado, an overflow occurred through the gauging hatch of the tank. The spilled oil was contained within the secondary containment system of Tank 1210. Absorbent material was immediately deployed to consolidate area. Free product was removed by a vacuum truck. Stained stone and soil was removed and disposed of at an approved treatment facility. Closure requested 6/21/2002, no response to date.	HS-16
2003	3/5/2003	03-03-05-1056-48	Unknown	Unknown	Spill is due to an idling engine - sheen on roadway - cleanup in progress	N/A
2003	6/16/2003	03-06-16-1258-24	6" dia. Transfer Pipeline adjacent to Avenue B	210 Gallons gas (3 separate locations)	Premium gasoline at three locations along transfer pipeline. Release occurred at 1 blind flange (126 Gallons) and 2 bleeder valves (42 Gallons x 2). Transfer shutdown immediately upon discovery. Contaminated stone and soil was removed areas, locations then flooded with water to float any residual product and then recovered by tanker truck. An approximate 10 Gallons was recovered from sewer by vacuum tanker truck. Vertical migration inhibited by underlying clay layer. Approximately 60 yds. of contaminated soil were removed for disposal.	HS-17
2003	10/16/2003	03-10-16-1147-39	1 Hess Plaza	Unknown	COMPANY INSPECTED EMPTY TANK THAT AT ONE TIME CONTAINED SOUR WATER AND FOUND HOLES IN SAME.NO CONTAMINATION FOUND AT THIS TIME	N/A
2004	3/22/2004	04-03-22-0918-37	Transfer line between Tank 1218 and vessel S-1945	10 Gallons/ wastewater equalization tank sludge	A 8-inch transfer pipe was found leaking that traveled from TK-1218 to the wastewater bioreactor S-1945. At the time of the leak the ground was flooded with rain and snow melt. On 3/22/2004 the area dried up and layer of sludge was observed from the settled material in the tank from the storage process. When disposed of separately, this sludge is listed as a hazardous waste (F038). The contaminated stones and soil were removed and disposed of as hazardous waste in a total of (5) drums. The affected sections of pipe were replaced prior to the start-up of the of the water transfer.	N/A
2004	3/29/2004	04-03-29-1202-26	Tank 7935 foundation	1-2 Gallons impacted bottom water, gasoline	CONCRETE RING WALL SHOWING 3 FT WIDE SECTION OF MOISTURE . SUSPECT TANK BOTTOM MAY BE LEAKING. NO HAZMAT DISCHARGE AT THIS TIME. TANK BEING TAKEN OUT OF SERVICE. TANK IS 140,000 BARREL ABOVE GROUND TANK.*** Follow up**During a daily tank field inspection, about 5 feet of a foundation ring wall on the north side of the gasoline tank TK-7935 was observed to be wet with tank water bottoms, no evidence of hydrocarbons product in the leak area. The tank was pumped out to other storage tanks and 2 barges. After the tank is emptied and cleaned, the preliminary inspection revealed a 1-inch diameter corrosion area that has a hole through the corner weld of the tank. Tank was taken out of service for inspection and repair.	N/A
2004	6/11/2004	04-06-11-0900-47	Unknown	Unknown	OIL SHEEN ON ROADWAY AND MINOR AMOUNT GOING TO CREEK. MATERIAL SUSPECTED TO BE ROAD OIL	N/A
2004	8/4/2004	04-08-04-1413-33	Unknown	Unknown	RELEASE IS DUE TO A PIN HOLE LEAK THAT DEVELOPED WHEN CLAMPING A LINE. REPAIRS ARE IN PROGRESS. NON EMERGENT SITUATION.	N/A
2004	10/19/2004	04-10-19-1625-01	Tank 1201- small hole located in the bottom plate	None - Gasoline	200,000 BARREL ABOVE GROUND STORAGE TANK SUSPECTED OF LEAKING. CALLER STATES THAT FURTHER TESTS OF TANK AND SOIL ARE NEEDED TO DETERMINE IF PRODUCT OR WATER HAVE LEAKED. TANK HAS BEEN EMPTIED.---Follow up -During a periodic inspection of TK-1201, there were several small holes found in the floor of the tank. Coupons (access holes) were cut into the floor around the holes to inspect the concrete area. No evidence of a discharge of gasoline was found with a PID. Paul Bucknam sent a letter to DEP asking for a closure of the case number on 11/16/04.	N/A

**Attachment 2**  
**Summary of Historic Spills**  
**Hess Corporation - Port Reading Refinery**  
**750 Cliff Road**  
**Port Reading, Middlesex County, New Jersey**

Year of Release	Date of Discharge	NJDEP Case #	Location / Source	Material/Amount Released	Description of Incident	Historic Spill ID
2004	10/29/2004	04-10-29-1611-19	Tank 1233 - several small holes were found in bottom plate	None - Gasoline blend stock	During a periodic inspection of tank 1233, there were several small holes found in the floor of the tank. The tank bottom was replaced and no signs of contamination or release were found under the floor. Paul Buckman sent a letter to the DEP requesting case closure 1/7/2005	N/A
2005	11/4/2005	05-11-04-1342-02	Unknown	Unknown	PUMP FAILED ON GASLINE CAUSING IT TO SPILL INTO TANK FIELD. CLEAN UP IN PROGRESS.	N/A
2006	5/25/2006	06-05-25-1243-17	Fuel Line from Diesel Pump	Approximately 1-Gallons of diesel fuel	A fuel line from a diesel pump cracked causing a spill. The spill was cleaned up and the pump line was repaired.	HS-10(B)
2006	10/6/2006	06-10-06-1100-11	Cliff Rd	1 Gallons diesel	Customer's truck leaked diesel fuel while entering the refinery and leaked approximately 1 Gallons of diesel fuel on Cliff Rd. Hess personnel used absorbent pads and granular absorbent material, were used to remove the product from the pavement. No soils were impacted. The spill occurred during a rain event and a slight sheen was observed. Hess personnel inspected the discharge point and no sheen was seen. Hess contends closure, and requested closure in a 11/21/06 letter.	N/A
2007	2/21/2007	07-02-21-1431-44	Hess Refinery 1 Hess Plaza	Unknown	HISTORIC SPILL IN A DRAINAGE DITCH THAT IS CONTAINED ON LAND. CLEANUP IS PENDING.	N/A
2007	3/9/2007	07-03-09-1437-52	Tank 1219 (Spill primarily to Secondary Containment Area)	Approximately 26,000-Gallons of gasoline blend stock (heavy Cat Naphtha)	Two water draw valves were left open on a bulk storage container causing the spill. The spill was contained to the secondary containment area. Impacted soils around Tank 1219 were excavated and disposed of at an approved treatment facility. Mildly impacted soils were left in place within piping trench located between Tank 1219 and 1215.	HS-18
2007	4/15/2007	07-04-15-1803-38	Waste Water Treatment	Wastewater	TO AVOID 1/3000000 Gallons STORAGE TANK TO OVERFLOW DUE TO EXCESSIVE RAIN, FACILITY ALLOWED <100000 Gallons OF MATERIAL TO FLOW INTO CONTAINMENT AREA. WILL PUMP MATERIAL BACK INTO TANK WHEN ABLE.	N/A
2007	5/11/2007	07-05-11-1330-47	Leaking Subsurface Sulfuric Acid Drain Pipe	Unknownknown amount of sulfuric acid	In May 2007, a leaking drain pipe was identified within the Alkylation Unit area. The drain pipe was utilized to drain sulfuric acid in the Alkylation Unit. Upon identifying the release, HC-PR repaired the drain pipe and excavated approximately 6 cubic yards of soil.	HS-19
2007	5/24/2007	07-05-24-0922-16	Haz-Mat Environmental Group tanker truck spills spent sulfuric acid on Cliff Road	15 Gallons of spent sulfuric acid	The spilled acid left a trail on the pavement as it began to leave the Hess Refinery. Hess personnel alerted the driver after the truck proceeded approximately 200ft. Hess personnel applied sodium bicarbonate to the asphalt to neutralize and absorb the acid. The spent sodium bicarbonate was transferred to drums for disposal. There are no impacts to soil or water. All material was contained and fully cleaned up. Police and Fire departments were notified and responded to the release. They were both satisfied with the cleanup. Hess is not the responsible party and requested closure of the case number on June 15, 2007.	N/A
2007	5/24/2007	07-05-24-1025-52	Unknown	Unknown	TANKER LID POPPED OPEN AT FACILITY CAUSING A SPILL . CLEAN UP IS IN PROGRESS.	N/A
2007	9/26/2007	07-09-26-1907-19	Unknown	Unknown	OPERATOR ERROR CAUSED SPILL FROM VEHICLE TRANSFER HOSE. CLEAN UP COMPLETED.	N/A
2007	10/3/2007	07-10-03-1514-19	Truck Loading Rack - Sodium Hydroxide underground release	Unknownknown (suspected 20 Gallons)	Cracked underground drain pipe that was used to drain the acid/caustic truck loading rack containment area to a neutralization pit. The drain line received storm water runoff from the loading rack area. A high pH value (11.24) was detected in subsurface soil, near the cracked line. It is therefore suspected that Sodium Hydroxide was released into the soil. Soil testing was performed to determine if a discharge occurred. The neutralization pit was emptied to perform repairs to the drainage line.	N/A
2007	11/1/2007	07-11-01-1625-32	Soil near API Separator	Approximately 2-Gallons of oil	An oily discolored soil was encountered near the API oil/water separator during November 1, 2007 excavation activities. The neutralization pit was emptied to perform repairs to the drainage line. The drainage line was excavated and the line repaired. Soil contamination to be addressed as part of remediation program. Approximately 15 yards of petroleum impacted soil was transported to Cycle Chem of Elizabeth, New Jersey for proper disposal. EnviroTrac collected one soil sample from approximately 6.0 fbg. The sample was below the most stringent NJDEP SCC.	HS-4(B)
2008	2/11/2008	08-02-11-0854-44	Flare Knock-out Drum	1786 Gallons of Water/Hydrocarb on Mixture	A 1.5 inch diameter section of piping covered in insulation and connected to a site glass corroded and caused a leak. The leak occurred due to internal corrosion. The line was replaced, and will be inspected via x-ray technology on a 5 year basis.	N/A
2008	8/14/2008	08-08-14-0949-36	Southwest corner of Loading Rack Tank Field (Spill to Secondary Containment Area)	Approximately 30-Gallons of gasoline	It is suspected that a small quantity of gasoline was resident in the storm water sewer system after tank bottom water draining and the material backed out of the storm sewer system during a rainfall event. During the initial assessment, one possible cause under review was a possible leak from an underground pipeline. The pipeline was confirmed to be sound and not the cause of the release. Procedures for draining tank bottom water will be reviewed to prevent a reoccurrence. Closure requested 9/11/2008	HS-20
2008	12/12/2008	08-12-12-1134-15	Waste Water Treatment	Unknown	Equipment Upset- DUE TO RAIN WASTE WATER WAS BYPASSED TO SECONDARY CONTAINMENT	N/A
2009	2/15/2009	09-02-15-1527-23	Unknown	Unknown	DURING INSPECTION OF STORAGE TANK WATER WAS FORCED INTO TANK REVEALING SMALL AMOUNTS OF MOISTURE ON BOTTOM OUTSIDE WALL. TANK IS OUT OF SERVICE FOR MAINTENANCE.	N/A
2009	5/19/2009	09-05-19-1218-35	Tank #7930	Estimated 5 Gallons Gasoline	HOLE FOUND UNDER EMPTY 1.88 MILLION Gallons STORAGE TANK. SPILL CONTAINED TO CONFINEMENT AREA. Hole discovered in the water draw sump, gasoline impacted water was identified entering the sump. Approximately 2.5 feet of impacted soil was removed. Soil sample 7930 Sump PE-1 was collected and analyzed for VO+10. The results indicated several compounds above the NJDEP IGWSRS. On October 28, 2009, one (1) temporary monitoring well (Tank 7930-TW-1) was installed. The sample was analyzed for VO+10, BN+15. The results indicate that all results are below the NJDEP GWQS.	HS-21

**Attachment 2**  
**Summary of Historic Spills**  
**Hess Corporation - Port Reading Refinery**  
**750 Cliff Road**  
**Port Reading, Middlesex County, New Jersey**

Year of Release	Date of Discharge	NJDEP Case #	Location / Source	Material/Amount Released	Description of Incident	Historic Spill ID
2009	12/29/2009	09-12-29-1109-47	Detention Basin	1 Gallons residual oil	STORM WATER WAS BEING PUMPED FROM TANK FARM AREA TO HOLDING POND AND CAUSING A SPILL. CLEAN UP IN PROGRESS. During a storm event, approximately 1 Gallons of residual oil became entrained with storm water runoff within an onsite storm sewer line. The oil collected along the bank of the Refinery's onsite storm water collection basin. A vacuum truck was deployed to remove the oil that was present. Oil absorbent pads were also utilized to remove any detectable oil. Some minor soil excavation was performed. The cleanup was completed on 12/29/09. (Previously Associated with HS-14)	N/A
2010	10/5/2010	10-10-05-1218-03	Unknown	Unknown	CRACK IN PRODUCT LINE CAUSED SMALL OIL SHEEN INSIDE CONTAINMENT BOOM. CLEAN UP IN PROGRESS.	N/A
2011	7/6/2011	11-07-06-1015-30	Unknown	Unknown	STORAGE TANK HAS PIN HOLE LEAK. TANK BEING EMPTIED. NOTHING SPILLING AT THIS TIME. TANK HAS 6 FOOT OF PRODUCT IN TANK	N/A
2011	10/5/2011	11-12-06-1430-51	North Drainage Ditch	Less than 2 square yards of bacterial surface sheen.	During an inspection of the North Drainage Ditch a sheen of Unknown origin was observed in the tidal ditch located north-west of Landfarm Number 1 and north-east of the Dredge Spoils Area. Ken's Marine brought in to assist with cleanup. A sheen was noted in the water, mostly under the South Dock. A length of absorbent boom was placed across the ditch and around the sheen and absorbent pads were placed directly on the sheen however, the sheen did not adsorb onto the pads or exhibit other properties of petroleum. Multiple samples were collected analyzed indicating a robust bacterial community and library search compounds existing at levels less than applicable standards or non-detect. Groundwater nearby Number 1 Landfarm continues to be monitored on a quarterly basis. Closure Requested 05/29/12.	N/A
2012	2/15/2012	12-02-15-1003-11	750 Cliff Road	Unknown	SHEEN WAS OBSERVED DURING EXCAVATING NEAR LAND. SIZE 40 X 40 FEET CLEANUP IN PROGRESS	N/A
2012	7/15/2012	12-07-15-0831-12	Unknown	Unknown	SPILL DUE TO LEAKING FUEL PUMP ON WATER SYSTEM. CLEANUP COMPLETE.	N/A
2012	7/17/2012	12-07-17-2041-54	Unknown	Unknown	CALLER REPORTS A MINOR SPILL FROM A FUEL LINE AT THE LOCATION GIVEN. SPILL HAS BEEN CONTAINED AND CLEAN UP IN THE PROCESS.	N/A
2012	7/28/2012	12-07-28-1822-18	Unknown	Unknown	CALLER IS REPORTING A MINOR SPILL OF FUEL. CLEAN UP PENDING.	N/A
2012	8/23/2012	12-08-23-2241-45	Unknown	Unknown	CALLER IS REPORTING A MINOR SPILL AFTER PRODUCT TRANSFER. CLEAN UP UNDERWAY.	N/A
2012	10/3/2012	12-10-03-1111-37	Truck Loading Rack	Unknown	DISCHARGE FROM TANKER TRUCK HOSE AND LOADING CONNECTION. FIRE ON SCENE HOSING DOWN CONNECTION TILL THE PRESSURE IN TANKER GO DOWN. CLEANUP PENDING	N/A
2012	10/5/2012	12-10-05-1209-41	Unknown	Unknown	SPILL FROM EQUIPMENT. CLEANUP UNDERWAY	N/A
2013	3/7/2013	13-03-07-1900-54	Unknown	Unknown	CALLER IS REPORTING A SPILL OF DIESEL DURING FUELING.	N/A
2013	6/20/2013	13-07-24-1427-02	QC Lab	UST Removal	Removal of one 10,000 Gallons waste oil UST.	N/A
2013	8/6/2013	13-08-06-1704-56	Unknown	Unknown	CALLER REPORTS A LEAK FROM AN ABOVE GROUND STORAGE TANK. CLEAN UP IS PENDING.	N/A
2014	1/16/2014	14-01-16-1548-39	Near Tank 1221	200-300 Gallons-waste oil/water	Pipe leaked between T 1218 and WWTP. Leak occurred within 3rd Tank field between Tank 1221 and dike wall	N/A

# **ATTACHMENT 3**

## **LNAPL/GROUNDWATER GAUGING TABLE**

**Figure 3.1 – Sitewide Historic LNAPL Gauging Results**

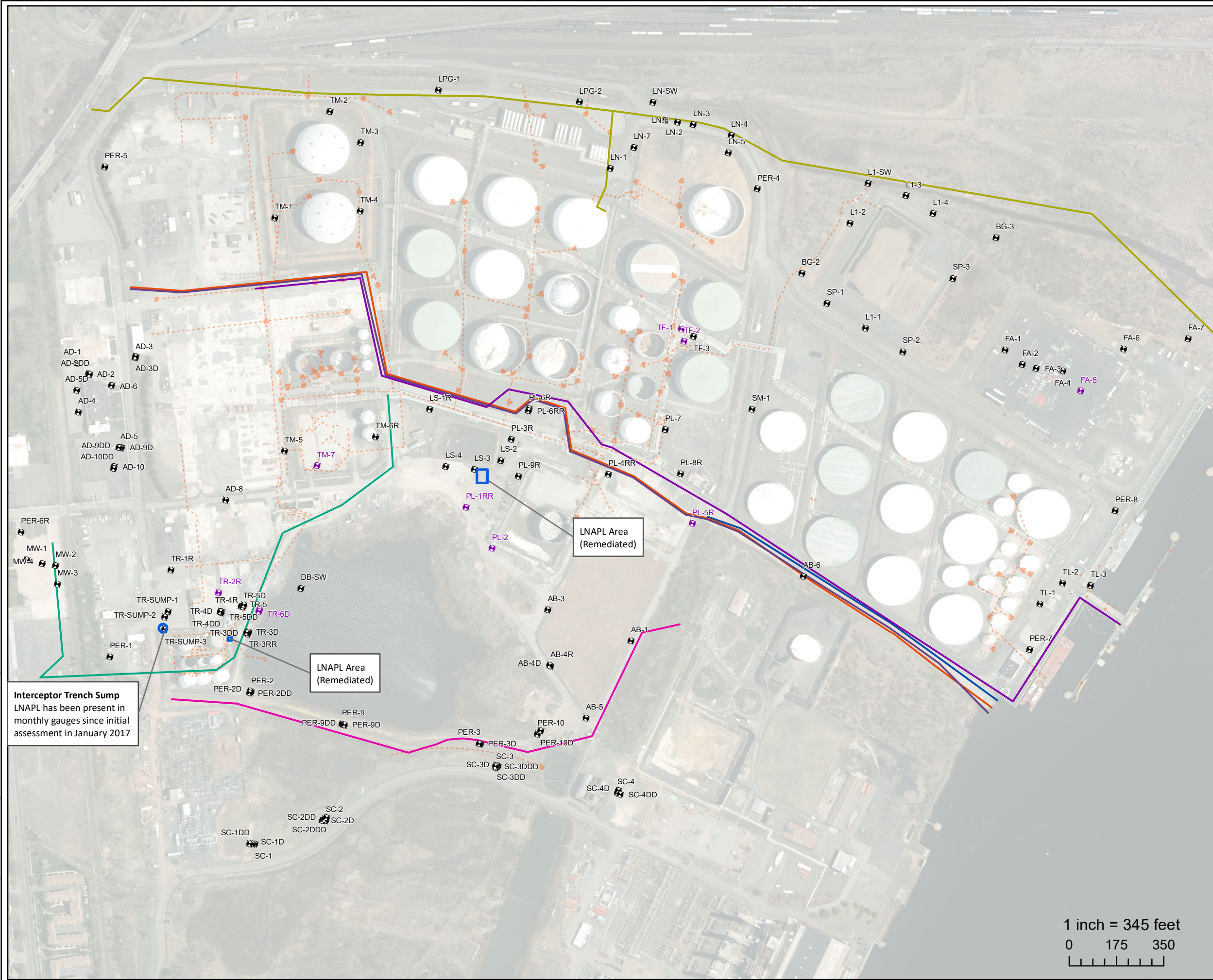
**Table 3.1 – Historic LNAPL Gauging Results**

**Table 3.2 – 2019 Annual Groundwater Gauging Results**

**Table 3.3 – Monthly Groundwater Gauging Results (2<sup>nd</sup> Quarter 2020)**



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**Interceptor Trench Sump**  
LNAPL has been present in monthly gauges since initial assessment in January 2017

**LNAPL Area (Remediated)**

**LNAPL Area (Remediated)**

## LEGEND

- Monitoring Well - No Historic LNAPL Observations
- Monitoring Well - Sporadic Historic LNAPL Observations

### Pipelines

- Buckeye Pipeline
- Colonial Pipeline
- 12" Spectra Pipeline
- 10" Spectra Pipeline
- Williams Former Trans Continental
- Williams Pipeline
- Unknown Pipeline
- Underground Utility Lines



**FIGURE: 3.1**  
**PORT READING**  
**SITEWIDE HISTORIC**  
**LNAPL GAUGING**

**HESS CORPORATION**  
**FORMER PORT READING COMPLEX**  
**750 CLIFF ROAD**  
**PORT READING, NEW JERSEY**

Project #:	1114J01	Drawn:	7/15/2019
SRP PI#:	006148	Drawn By:	RC

**Earth Systems**  
Environmental Engineering  
1625 Highway 71, Belmar, NJ 07719  
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This map was developed using New Jersey Department of Environmental Protection Geographic Information System Digital Data, but this secondary product has not been verified by NJDEP and is not state Authorized. Source: NAD 1983 (2011) New Jersey State Plane FIPS 2900 US FT.





Table 3.2  
Hess Corporation Former Port Reading Terminal  
750 Cliff Road  
Annual Groundwater Gauging Table  
Port Reading, New Jersey

WELL I.D.	Date	Depth to LNAPL (ft)	Depth to Water (ft)	LNAPL Thickness (ft)	DTB Original (ft)	DTB from TOC (ft)	TOC Elevation (ft)	Water Elevation (ft)	LNAPL Corrected Water Level ( $\rho = 0.82$ )	PID
AB-1	5/21/2020	--	5.38	--	13.00	12.50	11.68	6.30	--	0.0
AB-3	5/21/2020	--	3.63	--	10.00	13.40	12.33	8.70	--	6.5
AB-4R	5/21/2020	--	3.93	--	15.50	15.80	12.05	8.12	--	0.0
AB-4D	5/21/2020	--	10.42	--	33.00	33.80	11.81	1.39	--	0.0
AB-5	5/21/2020	--	4.90	--	13.00	13.30	11.18	6.28	--	0.0
AB-6	5/21/2020	--	3.09	--	10.50	10.10	6.95	3.86	--	1.1
AD-1	5/21/2020	--	5.10	--	13.00	10.58	16.12	11.02	--	0.0
AD-2	5/21/2020	--	6.79	--	18.00	16.67	16.64	9.85	--	227.3
AD-2DD	5/21/2020	--	9.37	--	45.00	44.36	16.58	7.21	--	0.1
AD-3	5/21/2020	--	9.81	--	11.00	13.80	19.96	10.15	--	0.0
AD-3D	5/21/2020	--	9.84	--	26.00	29.02	19.71	9.87	--	0.0
AD-4	5/21/2020	--	6.16	--	15.00	14.26	15.45	9.29	--	0.0
AD-5	5/21/2020	--	6.12	--	15.00	14.62	15.59	9.47	--	0.2
AD-5D	5/21/2020	--	7.88	--	30.00	28.66	15.48	7.60	--	49.0
AD-6	5/21/2020	--	7.36	--	15.00	14.48	17.13	9.77	--	0.0
AD-8	5/21/2020	--	7.00	--	15.00	15.10	15.85	8.85	--	0.0
AD-9D	5/21/2020	--	7.86	--	28.00	26.59	15.50	7.64	--	4.3
AD-9DD	5/21/2020	--	9.56	--	60.00	54.60	15.43	5.87	--	0.0
AD-10	5/21/2020	--	8.59	--	20.00	19.30	16.05	7.46	--	0.4
AD-10DD	5/21/2020	--	8.76	--	65.00	64.12	16.14	7.38	--	0.0
FA-1	5/21/2020	--	2.99	--	13.00	14.03	10.02	7.03	--	0.0
FA-2	5/21/2020	--	4.16	--	14.00	13.50	10.76	6.60	--	0.0
FA-3	5/21/2020	--	8.64	--	15.00	14.58	11.28	2.64	--	4.0
FA-4	5/21/2020	--	8.93	--	15.00	14.50	11.39	2.46	--	0.0
FA-5	5/21/2020	--	6.21	--	15.00	NM	10.53	4.32	--	3.8
FA-6	5/21/2020	--	6.95	--	15.00	12.30	12.46	5.51	--	0.0
FA-7	5/21/2020	--	9.24	--	15.00	18.50	10.94	1.70	--	0.0
LPG-1	5/21/2020	--	4.35	--	9.00	8.00	11.60	7.25	--	0.0
LPG-2	5/21/2020	--	3.12	--	10.00	9.55	7.05	3.93	--	0.0
PER-1	5/21/2020	--	9.90	--	17.70	17.65	17.18	7.28	--	0.0
PER-2	5/21/2020	--	5.57	--	12.00	12.00	10.76	5.19	--	0.7
PER-2D	5/21/2020	--	6.26	--	33.00	32.00	11.30	5.04	--	0.1
PER-2DD	5/21/2020	--	6.50	--	60.00	63.00	10.53	4.03	--	11.2
PER-3	5/21/2020	--	4.34	--	12.16	12.55	7.32	2.98	--	0.0
PER-3D	5/21/2020	--	5.76	--	33.00	32.40	7.30	1.54	--	0.0
PER-4	5/21/2020	--	7.08	--	18.00	16.60	10.30	3.22	--	0.0
PER-5	5/21/2020	--	10.01	--	15.00	14.20	18.49	8.48	--	0.0
PER-6R	5/21/2020	--	9.55	--	20.00	21.74	21.54	11.99	--	0.0
PER-7	5/21/2020	--	6.63	--	18.00	15.73	8.94	2.31	--	0.0
PER-8	5/21/2020	--	5.79	--	17.00	13.92	7.74	1.95	--	0.0
PER-9	5/21/2020	--	5.32	--	18.00	18.00	8.02	2.70	--	0.00
PER-9D	5/21/2020	--	5.84	--	32.00	37.00	7.85	2.01	--	0.00
PER-9DD	5/21/2020	--	5.44	--	67.50	68.40	7.91	2.47	--	0.00
PER-10	5/21/2020	--	7.28	--	15.70	19.50	12.19	4.91	--	2.9
PER-10D	5/21/2020	--	10.39	--	32.00	32.30	11.94	1.55	--	0.0
PL-1RR	5/21/2020	Sheen	1.23	--	15.00	NM	7.36	6.13	--	6.5
PL-2	5/21/2020	--	1.95	--	15.00	NM	9.58	7.63	--	2.1
PL-3R	5/21/2020	--	3.77	--	20.00	19.00	10.16	6.39	--	22.3
PL-4RR	5/21/2020	--	4.83	--	10.00	11.50	11.56	6.73	--	0.0
PL-5R	5/21/2020	Sheen	1.20	--	10.00	NM	6.54	5.34	--	30.20
PL-6RR	5/21/2020	--	3.34	--	15.00	15.00	6.88	3.54	--	0.0
PL-7	5/21/2020	--	Dry	--	18.00	5.00	10.75	--	--	0.0
PL-8R	5/21/2020	--	4.22	--	20.00	22.00	9.91	5.69	--	0.6
PL-9R	5/21/2020	--	2.23	--	20.00	20.20	9.11	6.88	--	0.0
SM-1	5/21/2020	--	4.55	--	15.00	14.40	8.59	4.04	--	0.0
SP-1	5/21/2020	--	4.95	--	15.00	13.25	8.95	4.00	--	0.0
SP-2	5/21/2020	--	5.37	--	15.00	11.72	10.18	4.81	--	0.0
SP-3	5/21/2020	--	3.30	--	15.00	12.85	9.33	6.03	--	0.0
TF-1	5/21/2020	--	3.00	--	12.00	NM	8.60	5.60	--	3.7
TF-2	5/21/2020	--	1.55	--	12.00	NM	7.69	6.14	--	44.0
TF-3	5/21/2020	--	3.00	--	12.00	11.80	8.58	5.58	--	0.0

Table 3.2  
Hess Corporation Former Port Reading Terminal  
750 Cliff Road  
Annual Groundwater Gauging Table  
Port Reading, New Jersey

WELL I.D.	Date	Depth to LNAPL (ft)	Depth to Water (ft)	LNAPL Thickness (ft)	DTB Original (ft)	DTB from TOC (ft)	TOC Elevation (ft)	Water Elevation (ft)	LNAPL Corrected Water Level (p = 0.82)	PID
TL-1	5/21/2020	--	6.41	--	12.80	12.72	8.81	2.40	--	0.1
TL-2	5/21/2020	--	6.20	--	14.50	14.15	8.48	2.28	--	290.3
TL-3	5/21/2020	--	6.59	--	10.00	9.93	8.68	2.09	--	0.0
TM-1	5/21/2020	--	10.00	--	21.10	20.20	20.06	10.06	--	0.0
TM-2	5/21/2020	--	10.85	--	21.50	21.20	20.14	9.29	--	0.0
TM-3	5/21/2020	--	10.80	--	21.00	20.80	20.19	9.39	--	0.0
TM-4	5/21/2020	--	8.35	--	15.00	15.00	19.01	10.66	--	0.0
TM-5	5/21/2020	--	8.68	--	22.20	22.08	16.13	7.45	--	0.0
TM-6R	5/21/2020	--	5.41	--	20.00	NM	14.26	8.85	--	85.5
TM-7	5/21/2020	--	6.63	--	21.60	NM	14.81	8.18	--	81.0
TR-1R	5/21/2020	Sheen	6.34	--	16.00	14.90	13.68	7.34	--	0.0
TR-2R	5/21/2020	Sheen	0.25	--	20.00	19.80	12.47	12.22	--	40.0
TR-3RR	5/21/2020	--	2.77	--	15.00	14.50	9.63	6.86	--	0.0
TR-3D	5/21/2020	--	2.37	--	25.00	24.80	9.33	6.96	--	233.0
TR-3DD	5/21/2020	--	3.23	--	60.00	60.20	9.59	6.36	--	0.0
TR-4R	5/21/2020	--	1.52	--	15.00	13.68	12.18	10.66	--	11.50
TR-4D	5/21/2020	--	2.35	--	25.00	24.10	12.48	10.13	--	0.00
TR-4DD	5/21/2020	--	5.63	--	56.00	56.54	12.58	6.95	--	0.00
TR-5	5/21/2020	--	3.77	--	12.00	10.50	11.99	8.22	--	135.0
TR-5D	5/21/2020	--	5.16	--	25.00	22.80	11.57	6.41	--	68.0
TR-5DD	5/21/2020	--	5.02	--	60.00	60.70	11.28	6.26	--	0.0
TR-6	5/21/2020	--	3.81	--	12.50	12.90	10.78	6.97	--	0.0
TR-6D	5/21/2020	--	4.26	--	28.30	29.20	10.81	6.55	--	0.0
DB-SW	5/21/2020	--		--	--		1.08	1.08	--	
L1-SW	5/21/2020	--		--	--		-0.2	-0.20	--	
LN-SW	5/21/2020	--		--	--		-0.31	-0.31	--	
TR-SUMP-1	5/21/2020	--	5.34	--	--	7.35	12.62		--	0.0
TR-SUMP-2	5/21/2020	--	5.05	--	--	7.15	12.35	7.30	--	13.2
MW-1	5/21/2020	--	10.89	--	13.00	16.20	24.48	13.59	--	0.0
MW-2	5/21/2020	--	4.21	--	13.00	14.74	19.01	14.80	--	0.0
MW-3	5/21/2020	--	2.69	--	13.00	12.81	18.91	16.22	--	0.0
MW-4	5/21/2020	--	5.91	--	15.00	18.00	24.07	18.16	--	0.0
LN-1	5/21/2020	--	5.13	--	16.00	14.00	10.37	5.24	--	0.0
LN-2	5/21/2020	--	5.98	--	13.00	11.80	9.65	3.67	--	0.0
LN-3	5/21/2020	--	5.45	--	11.30	13.01	8.92	3.47	--	0.0
LN-4	5/21/2020	--	7.62	--	14.00	15.00	10.69	3.07	--	0.0
LN-5	5/21/2020	--	6.94	--	15.00	16.00	10.57	3.63	--	0.0
LN-6	5/21/2020	--	8.63	--	15.00	17.20	12.15	3.52	--	0.0
LN-7	5/21/2020	--	9.07	--	15.00	17.50	13.3	4.23	--	0.0
LS-1R	5/21/2020	--	3.55	--	16.00	16.15	12.25	8.70	--	0.0
LS-2	5/21/2020	--	2.33	--	12.01	12.10	9.75	7.42	--	2.5
LS-3	5/21/2020	--	1.25	--	12.00	13.00	8.4	7.15	--	0.0
LS-4	5/21/2020	--	1.96	--	12.00	13.70	9.28	7.32	--	0.0
L1-1	5/21/2020	--	4.78	--	15.00	13.52	9.91	5.13	--	0.0
L1-2	5/21/2020	--	6.34	--	14.00	14.40	9.05	2.71	--	0.0
L1-3	5/21/2020	--	6.69	--	9.40	10.95	9.33	2.64	--	0.0
L1-4	5/21/2020	--	8.07	--	9.00	11.00	10.85	2.78	--	0.0
BG-2	5/21/2020	--	2.60	--	9.20	8.97	6.96	4.36	--	0.0
BG-3	5/21/2020	--	4.48	--	10.00	10.74	10.31	5.83	--	0.2
SC-1	5/21/2020	--	1.80	--	15.00	15.00	4.74	2.94	--	0.4
SC-1D	5/21/2020	--	0.00	--	30.00	33.00	4.95	4.95	--	0.0
SC-1DD	5/21/2020	--	0.00	--	60.00	59.00	5.07	5.07	--	0.0
SC-2	5/21/2020	--	1.90	--	15.00	15.44	4.89	2.99	--	1.5
SC-2D	5/21/2020	--	2.52	--	35.00	33.90	4.68	2.16	--	0.4
SC-2DD	5/21/2020	--	2.45	--	60.00	60.80	4.69	2.24	--	0.8
SC-2DDD	5/21/2020	--	2.20	--	78.00	77.00	4.54	2.34	--	0.0
SC-3	5/21/2020	--	4.91	--	14.00	16.70	7.03	2.12	--	0.2
SC-3D	5/21/2020	--	5.11	--	35.00	37.80	6.42	1.31	--	0.0
SC-3DD	5/21/2020	--	5.39	--	65.00	67.60	6.74	1.35	--	11.0
SC-3DDD	5/21/2020	--	5.55	--	81.00	83.70	6.84	1.29	--	2.8
SC-4	5/21/2020	--	3.34	--	15.00	15.30	7.11	3.77	--	0.3
SC-4D	5/21/2020	--	5.81	--	35.00	34.30	7.08	1.27	--	0.0
SC-4DD	5/21/2020	--	5.62	--	60.00	60.00	6.92	1.30	--	0.4
-- Not Applicable * All Measurements are in feet			DTB - Depth to Bottom TOC - Top of Casing			LNAPL - Light Non-Aqueous Phase Liquids NM - Not Measured				

Well I.D.	Date	Time	Depth to LNAPL (ft)	Depth to Water (ft)	LNAPL Thickness (ft)	DTB from TOC (ft)	TOC Elevation (ft)	Water Elevation (LNAPL Corrected Where Applicable, ft)	PID	Notes
PL-1RR	4/17/2020	9:31	--	0.20	--	14.88	7.36	7.16	1.2	Sheen, Sock absorbed, replaced sock
	5/21/2020	NM	--	1.23	--	NM	7.36	6.13	6.5	Sheen, Sock absorbed, replaced sock
	6/18/2020	10:25	--	1.00	--	14.50	7.36	6.36	1.0	Sheen, Sock absorbed, replaced sock
PL-2	4/17/2020	9:50	--	1.70	--	16.88	9.58	7.88	1.1	Sock clean, iron like color 1/4 sock
	5/21/2020	NM	--	1.95	--	NM	9.58	7.63	2.1	Globules, replaced sock
	6/18/2020	10:40	--	1.94	--	16.79	9.58	7.64	0.0	Sock clean, iron like color 1/4 sock
PL-3R	4/17/2020	10:05	--	3.79	--	19.03	10.16	6.37	10.1	
	5/21/2020	NM	--	3.77	--	19.00	10.16	6.39	22.3	
	6/18/2020	10:18	--	3.66	--	19.30	10.16	6.50	8.1	
PL-4RR	4/17/2020	10:45	--	4.45	--	13.57	11.56	7.11	0.0	
	5/21/2020	NM	--	4.83	--	11.50	11.56	6.73	0.0	
	6/18/2020	10:58	--	4.73	--	11.80	11.56	6.83	0.0	
PL-5R	4/17/2020	10:24	--	0.35	--	9.80	6.54	6.19	29.6	Sheen, sock fully absorbed, replaced sock, no globules/LNAPL
	5/21/2020	NM	--	1.20	--	NM	6.54	5.34	30.2	Sheen, sock fully absorbed, replaced sock, no globules/LNAPL
	6/18/2020	10:53	1.50	1.70	0.20	9.80	6.54	5.00	28.6	Measureable LNAPL, replaced sock
PL-6RR	4/17/2020	10:00	--	1.10	--	15.05	6.88	5.78	0.0	
	5/21/2020	NM	--	1.20	--	15.00	6.88	5.68	0.0	
	6/18/2020	11:00	--	3.47	--	15.00	6.88	3.41	0.0	
PL-7	4/17/2020	10:50	--	4.81	--	5.01	10.75	5.94	0.0	Dry, mud at bottom
	5/21/2020	NM	--	Dry	--	5.01	10.75	Dry	0.0	Dry, mud at bottom
	6/18/2020	11:20	--	4.82	--	5.01	10.75	5.93	0.0	Dry, mud at bottom
PL-8R	4/17/2020	10:55	--	4.08	--	22.00	9.91	5.83	0.3	
	5/21/2020	NM	--	4.22	--	22.00	9.91	5.69	0.6	
	6/18/2020	11:15	--	4.65	--	22.20	9.91	5.26	0.0	
PL-9R	4/17/2020	9:27	--	2.06	--	20.40	9.11	7.05	0.3	
	5/21/2020	NM	--	2.23	--	20.20	9.11	6.88	0.0	
	6/18/2020	10:22	--	2.20	--	NM	9.11	6.91	0.0	
TF-1	4/17/2020	11:05	--	2.56	--	12.10	8.60	6.04	21.6	Sock clean, light orange
	5/21/2020	NM	--	3.00	--	NM	8.60	5.60	3.7	Globules, replaced sock
	6/18/2020	NM	--	NM	--	NM	8.60	NM	NM	Could not access
TF-2	4/17/2020	14:52	--	1.62	--	11.80	7.50	5.88	37.2	Replaced sock, light sheen
	5/21/2020	NM	--	1.55	--	NM	7.50	5.95	44.0	
	6/18/2020	NM	--	NM	--	NM	7.50	NM	NM	Could not access
TF-3	4/17/2020	10:58	--	2.31	--	11.80	8.58	6.27	0.0	
	5/21/2020	NM	--	3.00	--	11.80	8.58	5.58	0.0	
	6/18/2020	NM	--	NM	--	11.80	8.58	NM	NM	Could not access
TM-6R	4/17/2020	9:55	--	4.76	--	20.40	14.26	9.50	88.2	Sock clean, light orange
	5/21/2020	NM	--	5.41	--	NM	14.26	8.85	85.5	Replaced sock, light sheen
	6/18/2020	10:10	--	5.45	--	20.20	14.26	8.81	18.0	
TM-7	4/17/2020	9:13	--	6.82	--	21.80	14.81	7.99	58.9	Sock black bottom 8th, Slight sheen, Replace sock
	5/21/2020	NM	--	6.63	--	NM	14.81	8.18	81.0	Globules, replaced sock
	6/18/2020	10:04	--	7.06	--	22.00	14.81	7.75	22.8	Sock black bottom 8th, Slight sheen, Replace sock
TR-1R	4/17/2020	12:00	--	6.15	--	15.00	13.68	7.53	0.0	
	5/21/2020	NM	--	6.34	--	14.90	13.68	7.34	0.0	Sheen
	6/18/2020	13:35	--	6.63	--	15.10	13.68	7.05	0.2	
TR-2R	4/17/2020	13:10	--	0.20	--	20.00	12.47	12.27	110.0	Sheen
	5/21/2020	NM	--	0.25	--	19.80	12.47	12.22	40.0	Sheen, replaced sock
	6/18/2020	13:42	--	0.20	--	20.30	12.47	12.27	150.0	Sheen and globules on surface, Placed Sock
TR-3RR	4/17/2020	8:38	--	2.30	--	15.10	9.63	7.33	0.2	
	5/21/2020	NM	--	2.77	--	14.50	9.63	6.86	0.0	
	6/18/2020	9:25	--	3.12	--	15.08	9.63	6.51	0.0	
TR-3D	4/17/2020	8:20	--	2.14	--	27.74	9.33	7.19	117.2	
	5/21/2020	NM	--	2.37	--	24.80	9.33	6.96	233.0	
	6/18/2020	9:19	--	2.70	--	24.40	9.33	6.63	136.0	
TR-3DD	4/17/2020	8:28	--	3.21	--	60.10	9.59	6.38	0.5	
	5/21/2020	NM	--	3.23	--	60.20	9.59	6.36	0.0	
	6/18/2020	9:22	--	3.48	--	60.20	9.59	6.11	0.0	
TR-4D	4/17/2020	NM	--	NM	--	NM	12.18	NM		Covered by Truck
	5/21/2020	NM	--	2.35	--	24.10	12.18	9.83	0.0	
	6/18/2020	13:48	--	2.75	--	24.80	12.18	9.43	8.5	
TR-4R	4/17/2020	NM	--	NM	--	NM	12.48	NM	153.0	Covered by Truck
	5/21/2020	NM	--	1.52	--	13.68	12.48	10.96	11.5	
	6/18/2020	13:58	--	1.81	--	13.90	12.48	10.67	178.8	
TR-4DD	4/17/2020	NM	--	NM	--	NM	12.58	NM	0.2	Covered by Truck
	5/21/2020	NM	--	5.63	--	56.54	12.58	6.95	0.0	
	6/18/2020	14:00	--	5.86	--	57.60	12.58	6.72	0.4	
TR-5	4/17/2020	8:30	--	3.66	--	10.50	11.99	8.33	110.0	
	5/21/2020	NM	--	3.77	--	10.50	11.99	8.22	135.0	
	6/18/2020	9:42	--	3.93	--	10.50	11.99	8.06	115.0	
TR-5D	4/17/2020	8:35	--	4.96	--	22.64	11.57	6.61	314.8	
	5/21/2020	NM	--	5.16	--	22.80	11.57	6.41	68.0	
	6/18/2020	9:40	--	5.38	--	22.80	11.57	6.19	438.0	
TR-5DD	4/17/2020	8:42	--	6.13	--	60.13	11.28	5.15	0.1	
	5/21/2020	NM	--	5.02	--	60.70	11.28	6.26	0.0	
	6/18/2020	9:37	--	5.17	--	60.20	11.28	6.11	12.2	
TR-6	4/17/2020	8:50	--	3.58	--	12.70	10.78	7.20	0.0	
	5/21/2020	NM	--	3.81	--	12.90	10.78	6.97	0.0	
	6/18/2020	9:50	--	4.15	--	12.80	10.78	6.63	0.0	
TR-6D	4/17/2020	8:53	--	4.10	--	29.00	10.81	6.71	0.1	
	5/21/2020	NM	--	4.26	--	29.20	10.80	6.54	0.0	
	6/18/2020	9:48	--	4.49	--	29.20	10.81	6.32	0.0	
TR-Sump-1	4/17/2020	11:40	--	5.31	--	7.40	12.62	7.31	0.0	
	5/21/2020	NM	--	5.34	--	7.35	12.62	7.28	0.0	
	6/18/2020	13:28	--	5.36	--	7.50	12.62	7.26	2.2	
TR-Sump-2	4/17/2020	11:37	--	4.99	--	7.20	12.35	7.36	1.1	
	5/21/2020	NM	--	5.05	--	7.15	12.35	7.30	13.2	
	6/18/2020	13:25	--	5.06	--	7.20	12.35	7.29	0.0	
Interceptor Trench	4/17/2020	11:33	0.35	NM	--	5.00	NA	NA	NA	
	05/2020	NM	1.60	NM	--	5.00	NA	NA	NA	
	6/18/2020	13:24	NM	NM	--	5.00	NA	NA	NA	
DB-SW	4/17/2020	9:08	--	7.40	--	NA	-0.11	7.51	NA	
	05/2020	NM</								

# **ATTACHMENT 4**

## **SOIL FIGURES & TABLES**

**Figure 4.1 – Sitewide Surface Soil Map – VOC Exceedances**

**Figure 4.2 – Sitewide Surface Soil Map – SVOC/PCB Exceedances**

**Figure 4.3 – Sitewide Surface Soil Map – Metals Exceedances**

**Figure 4.4 – Sitewide Surface Soil Map – EPH Exceedances**

**Figure 4.5 – Sitewide Sub-Surface Soil Map – VOC Exceedances**

**Figure 4.6 – Sitewide Sub-Surface Soil Map – EPH Exceedances**

**Figure 4.7 – Sitewide Sub-Surface Soil Map – SVOC Exceedances**

**Figure 4.8 – Sitewide Sub-Surface Soil Map – Metals Exceedances**

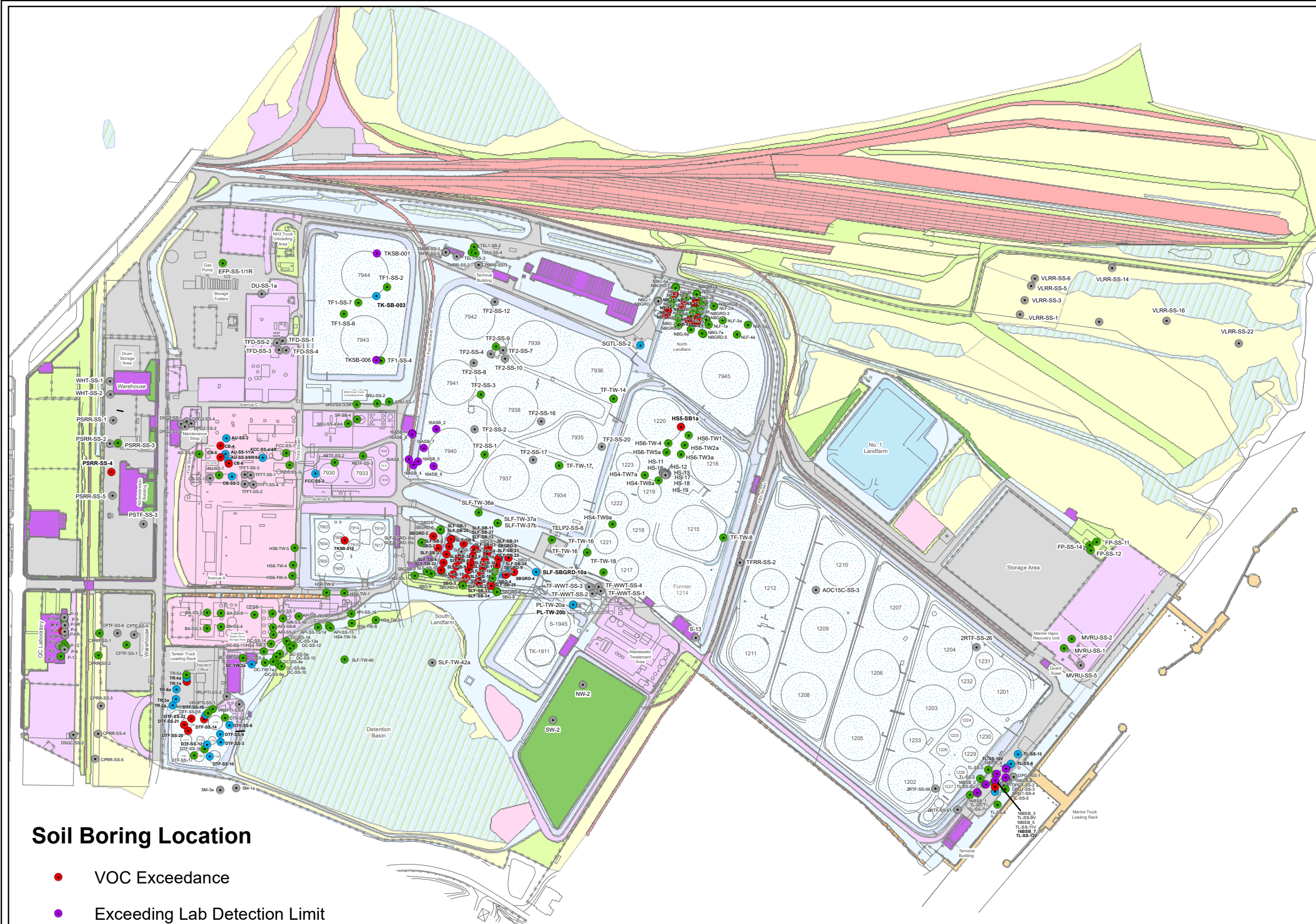
**Figure 4.9 through Figure 4.64 – 2015 Site Investigation Soil Analytical Results**

**Figure 4.65 – January 2018 Soil Analytical Results – AOC 10**

**Figure 4.66 – 2019 Soil Analytical Results – AOC 10**

**Table 4.1 – 2015 Site Investigation Soil Analytical Results**





Soil Boring Location

- VOC Exceedance
- Exceeding Lab Detection Limit
- VOC Exceed IGW
- VOC No Exceedance
- VOC Not Analyzed

LEGEND

- Asphalt
- Degraded Asphalt or Millings
- Gravel
- Vegetative Stone
- Concrete Slabs
- Tankfield
- Exposed Soil
- Landscaping - grass areas
- Landfarm
- Wetlands
- Vegetative Uplands
- Ditch
- Berms
- Rail Roads
- Dock



FIGURE: 4.1  
SITEWIDE  
SURFACE SOIL MAP  
VOC EXCEEDANCE

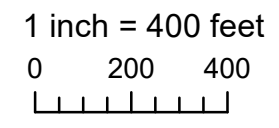
HESS CORPORATION  
FORMER PORT READING COMPLEX  
750 CLIFF ROAD  
PORT READING, NEW JERSEY

Project #:	1114J01	Drawn:	7/31/2020
SRP PI#:	006148	Drawn By:	AE

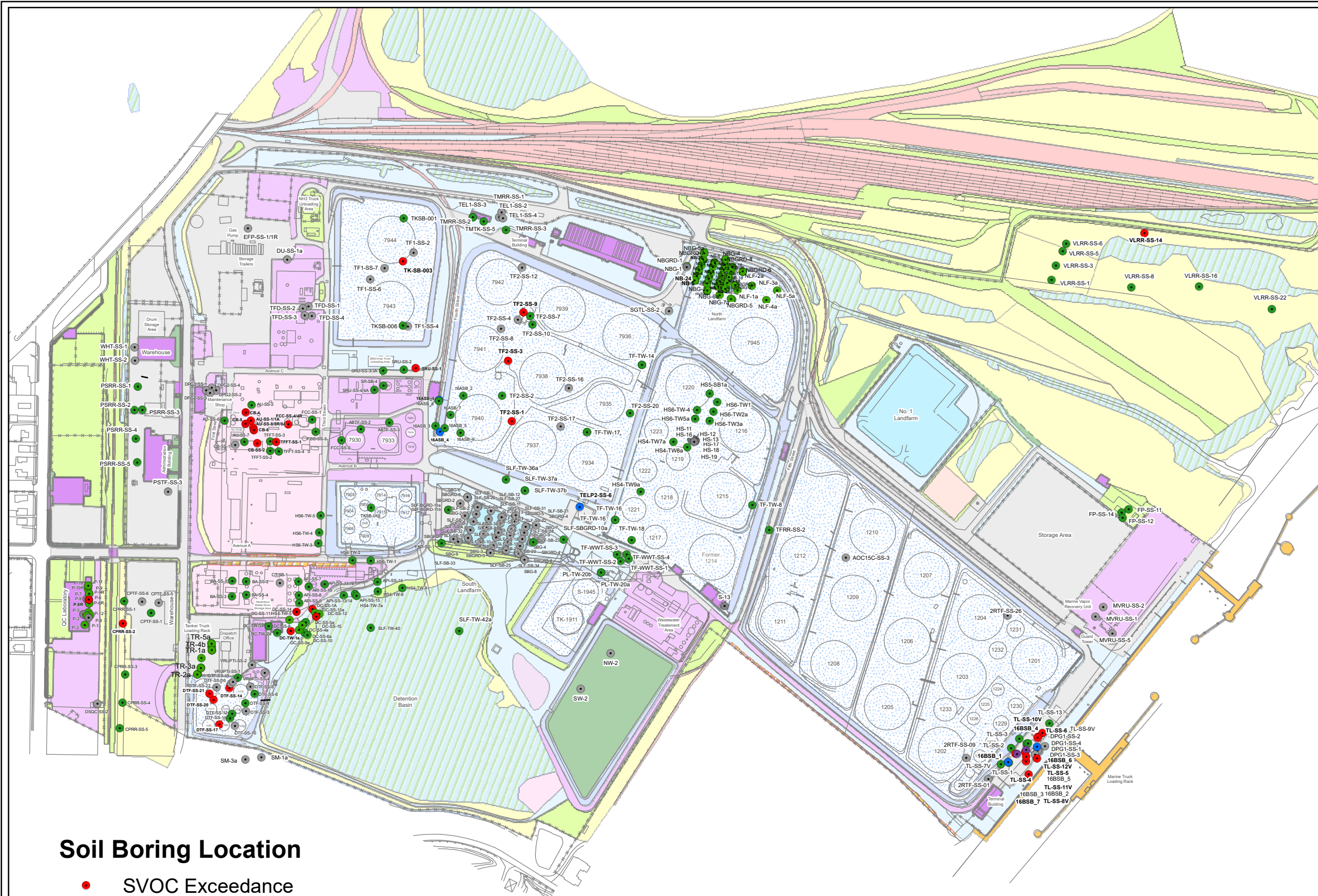


1625 Highway 71, Belmar, NJ 07719  
T. 732.739.6444 | F. 732.739.0451

This map was developed using New Jersey Department of Environmental Protection Geographic Information System Digital Data, but this secondary product has not been verified by NJDEP and is not state Authorized. Source: NAD 1983 (2011) New Jersey State Plane FIPS 2900 US FT.








## Soil Boring Location

- SVOC Exceedance
- Exceeding Lab Detection Limit
- SVOC Exceed IGW
- SVOC No Exceedance
- SVOC Not Analyzed

1 inch = 400 feet

0      200      400



## LEGEND

- |   |                              |
|---|------------------------------|
|    | Asphalt                      |
|    | Berms                        |
|    | Concrete Slabs               |
|    | Ditch                        |
|    | Dock                         |
|    | Exposed Soil                 |
|    | Gravel                       |
|    | Landfarm                     |
|    | Landscaping - grass areas    |
|    | Degraded Asphalt or Millings |
|    | Rail Roads                   |
|    | Tankfield                    |
|    | Vegetative Stone             |
|   | Vegetative Uplands           |
|  | Wetlands                     |

**FIGURE: 4.2**  
**SITEWIDE**  
**SURFACE SOIL MAP**  
**SVOC/PCB EXCEEDANCE**

**HESS CORPORATION  
FORMER PORT READING COMPLEX  
750 CLIFF ROAD  
PORT READING, NEW JERSEY**

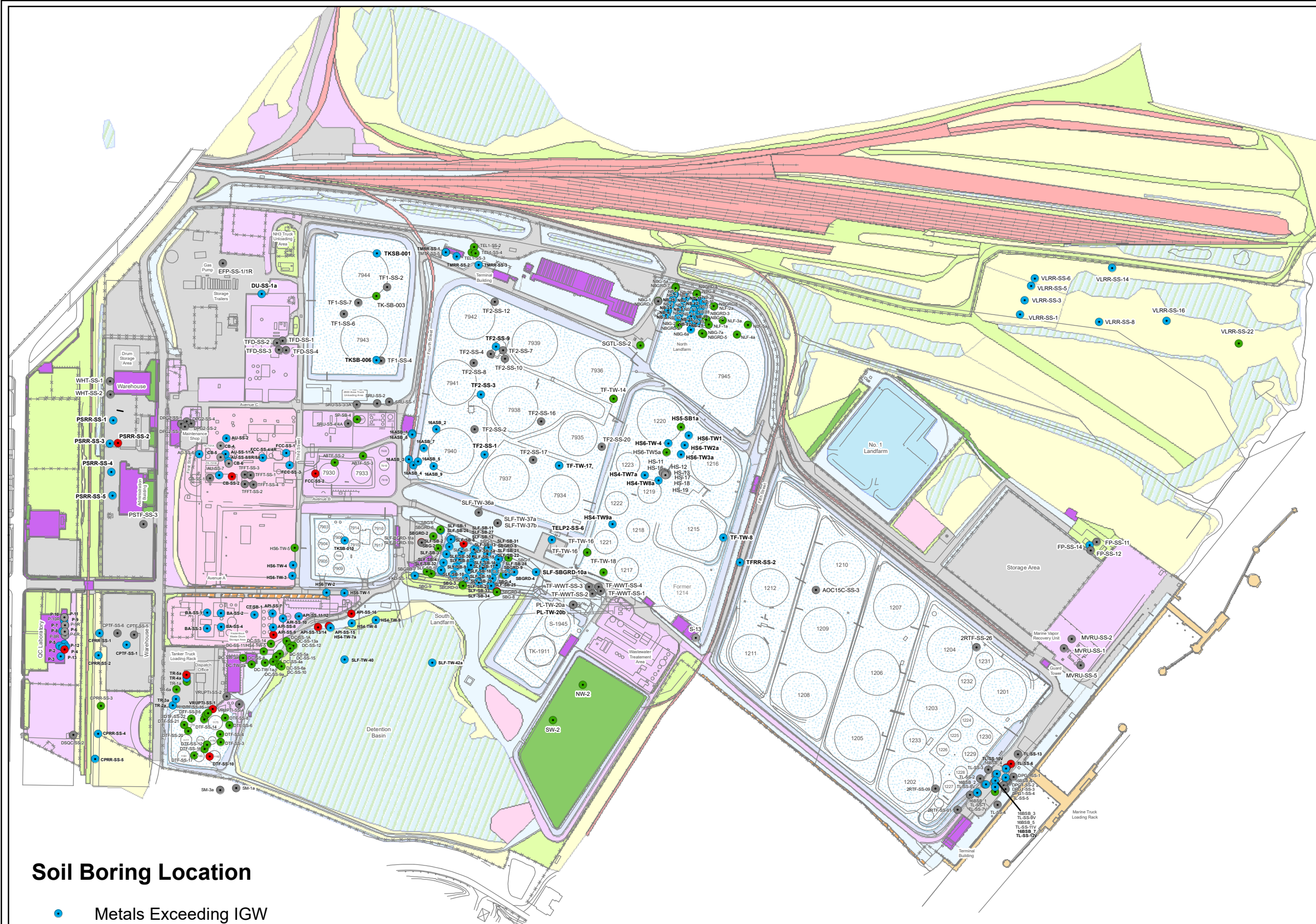
<b>Project #:</b>	1114J01	<b>Drawn:</b>	8/13/2020
<b>SRP PI#:</b>	006148	<b>Drawn By:</b>	AE



1625 Highway 71, Belmar, NJ 07719  
T. 732.739.6444 | F. 732.739.0451

This map was developed using New Jersey Department of Environmental Protection Geographic Information System Digital Data, but this secondary product has not been verified by NJDEP and is not state Authorized.  
Source: NAD 1983 (2011) New Jersey State Plane FIPS 2900 US FT.





### LEGEND

- Asphalt
- Degraded Asphalt or Millings
- Gravel
- Vegetative Stone
- Concrete Slabs
- Tankfield
- Exposed Soil
- Landscaping - grass areas
- Landfarm
- Wetlands
- Vegetative Uplands
- Ditch
- Berms
- Rail Roads
- Dock

**FIGURE: 4.3**

**SITEWIDE**

**SURFACE SOIL MAP**

**METALS EXCEEDANCE**

**HESS CORPORATION**

**FORMER PORT READING COMPLEX**

**750 CLIFF ROAD**

**PORT READING, NEW JERSEY**

<b>Project #:</b>	1114J01	<b>Drawn:</b>	7/31/2020
<b>SRP PI#:</b>	006148	<b>Drawn By:</b>	AE

1625 Highway 71, Belmar, NJ 07719  
T. 732.739.6444 | F. 732.739.0451

This map was developed using New Jersey Department of Environmental Protection Geographic Information System Digital Data, but this secondary product has not been verified by NJDEP and is not state Authorized. Source: NAD 1983 (2011) New Jersey State Plane FIPS 2900 US FT.

### Soil Boring Location

- Metals Exceeding IGW
- Metals No Exceedance
- Metals Not Analyzed
- Metals Exceedance

1 inch = 400 feet

0 200 400





**LEGEND**

- Asphalt
- Berms
- Concrete Slabs
- Ditch
- Dock
- Exposed Soil
- Gravel
- Landfarm
- Landscaping - grass areas
- Degraded Asphalt or Millings
- Rail Roads
- Tankfield
- Vegetative Stone
- Vegetative Uplands
- Wetlands



**FIGURE: 4.4**  
**SITEWIDE**  
**SURFACE SOIL MAP**  
**EPH EXCEEDANCE**

**HESS CORPORATION**  
**FORMER PORT READING COMPLEX**  
**750 CLIFF ROAD**  
**PORT READING, NEW JERSEY**

Project #:	1114J01	Drawn:	8/13/2020
SRP PI#:	006148	Drawn By:	AE



16825 Highway 771, Bedminster, NJ 07771-199  
Tel: 732.733.6444 | Fax: 732.733.0451

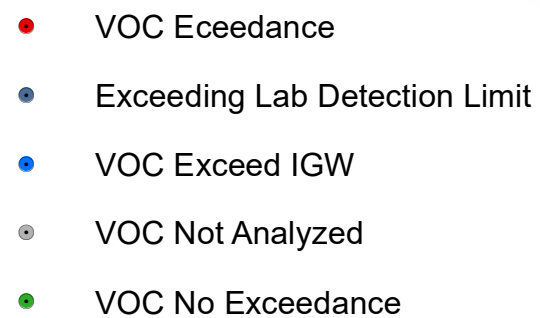
This map was developed using New Jersey Department of Environmental Protection Geographic Information System Digital Data, but this secondary product has not been verified by NJDEP and is not state Authorized. Source: NAD 1983 (2011) New Jersey State Plane FIPS 2900 US FT.

**Soil Boring Location**

- EPH Exceedance
- EPH No Exceedance
- EPH Not Analyzed

1 inch = 400 feet  
0 200 400





This map was developed using New Jersey Department of Environmental Protection Geographic Information System Digital Data, but this secondary product has not been verified by NJDEP and is not state Authorized.  
Source: NAD 1983 (2011) New Jersey State Plane FIPS 2900 US FT.





**Soil Boring Location**  
**EPH**

- EPH Exceedance
- EPH No Exceedance
- EPH Not Analyzed

**LEGEND**

- Asphalt
- Berms
- Concrete Slabs
- Ditch
- Dock
- Exposed Soil
- Gravel
- Landfarm
- Landscaping - grass areas
- Degraded Asphalt or Millings
- Rail Roads
- Tankfield
- Vegetative Stone
- Vegetative Uplands
- Wetlands



**FIGURE: 4.6**  
**SITEWIDE**  
**SUBSURFACE SOIL MAP**  
**EPH EXCEEDANCE**

**HESS CORPORATION**  
**FORMER PORT READING COMPLEX**  
**750 CLIFF ROAD**  
**PORT READING, NEW JERSEY**

Project #:	1114J01	Drawn:	8/13/2020
SRP PI#:	006148	Drawn By:	AE



1625 Highway 71, Belmar, NJ 07719  
T. 732.739.6444 | F. 732.739.0451

This map was developed using New Jersey Department of Environmental Protection Geographic Information System Digital Data, but this secondary product has not been verified by NJDEP and is not state Authorized. Source: NAD 1983 (2011) New Jersey State Plane FIPS 2900 US FT.

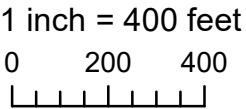
1 inch = 400 feet  
0 230 460





**Soil Boring Location**

- SVOC Exceedance
- SVOC Exceed IGW
- SVOC No Exceedance
- SVOC Not Analyzed



**LEGEND**

- Asphalt
- Berms
- Concrete Slabs
- Ditch
- Dock
- Exposed Soil
- Gravel
- Landfarm
- Landscaping - grass areas
- Degraded Asphalt or Millings
- Rail Roads
- Tankfield
- Vegetative Stone
- Vegetative Uplands
- Wetlands



**FIGURE: 4.7**  
**SITEWIDE**  
**SUBSURFACE SOIL MAP**  
**SVOC EXCEEDANCE**

**HESS CORPORATION**  
**FORMER PORT READING COMPLEX**  
**750 CLIFF ROAD**  
**PORT READING, NEW JERSEY**

<b>Project #:</b>	1114J01	<b>Drawn:</b>	8/13/2020
<b>SRP PI#:</b>	006148	<b>Drawn By:</b>	KJ

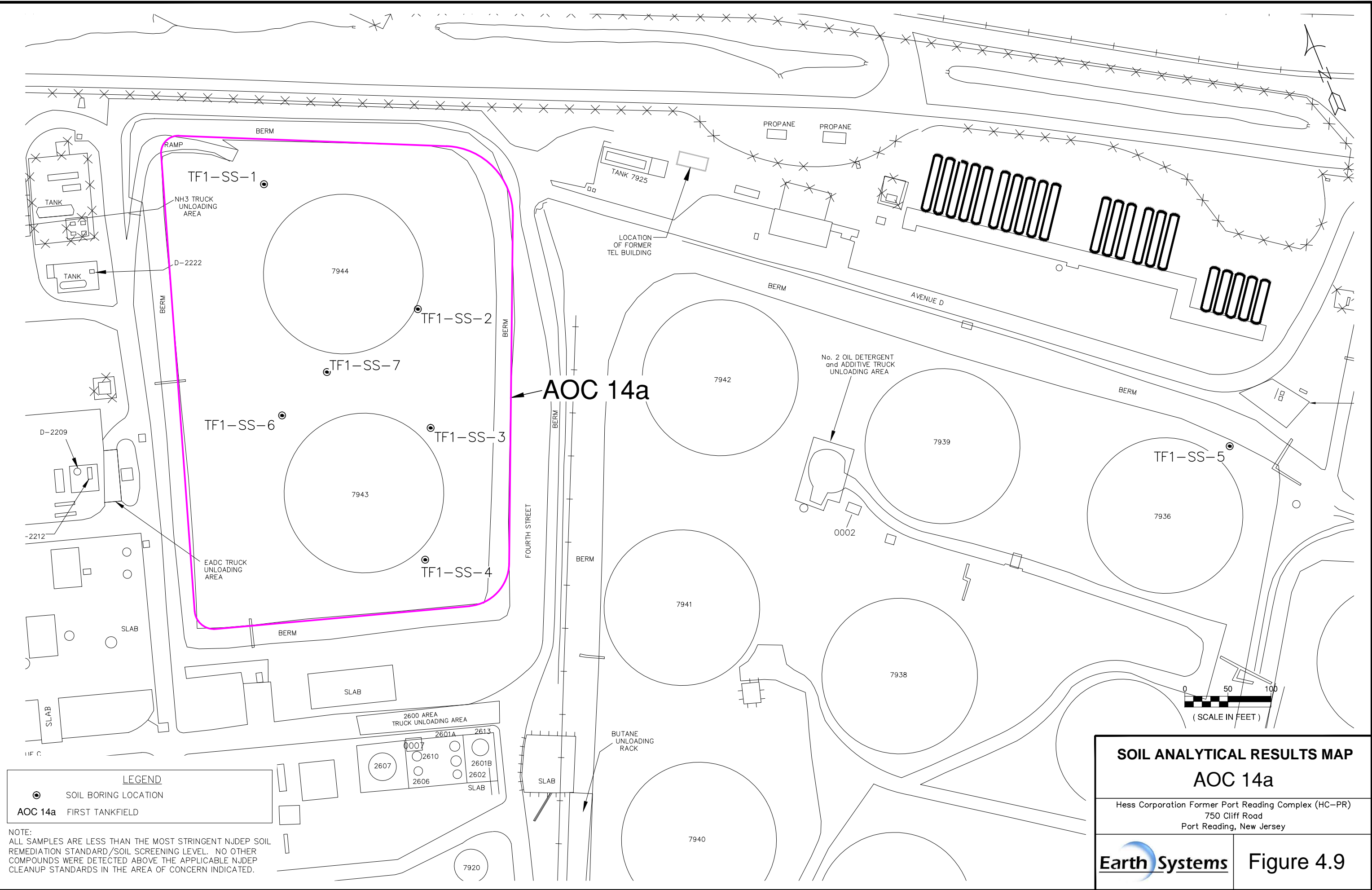


1625 Highway 71, Belmar, NJ 07719  
T. 732.739.6444 | F. 732.739.0451

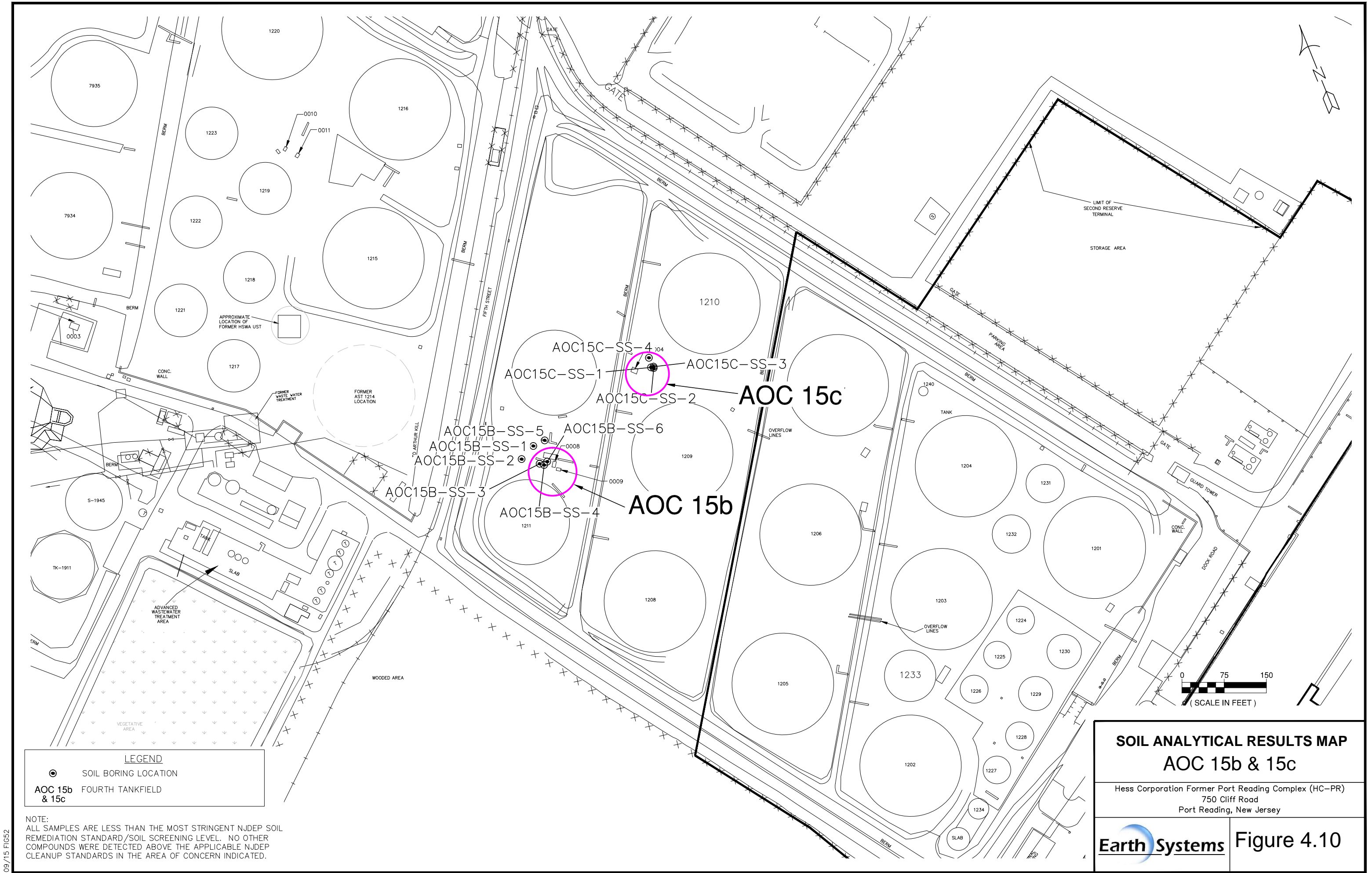
This map was developed using New Jersey Department of Environmental Protection Geographic Information System Digital Data, but this secondary product has not been verified by NJDEP and is not state Authorized. Source: NAD 1983 (2011) New Jersey State Plane FIPS 2900 US FT.

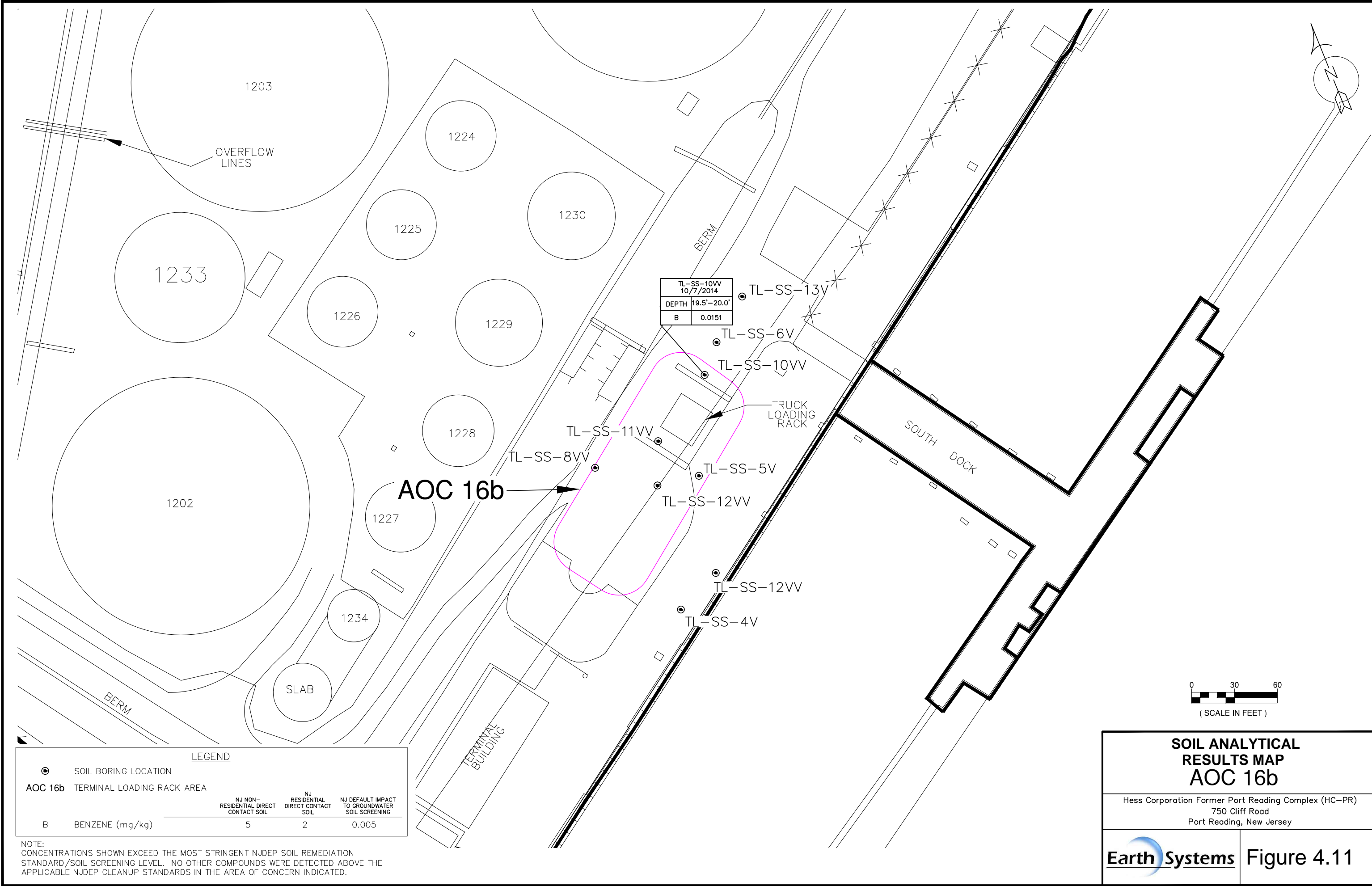




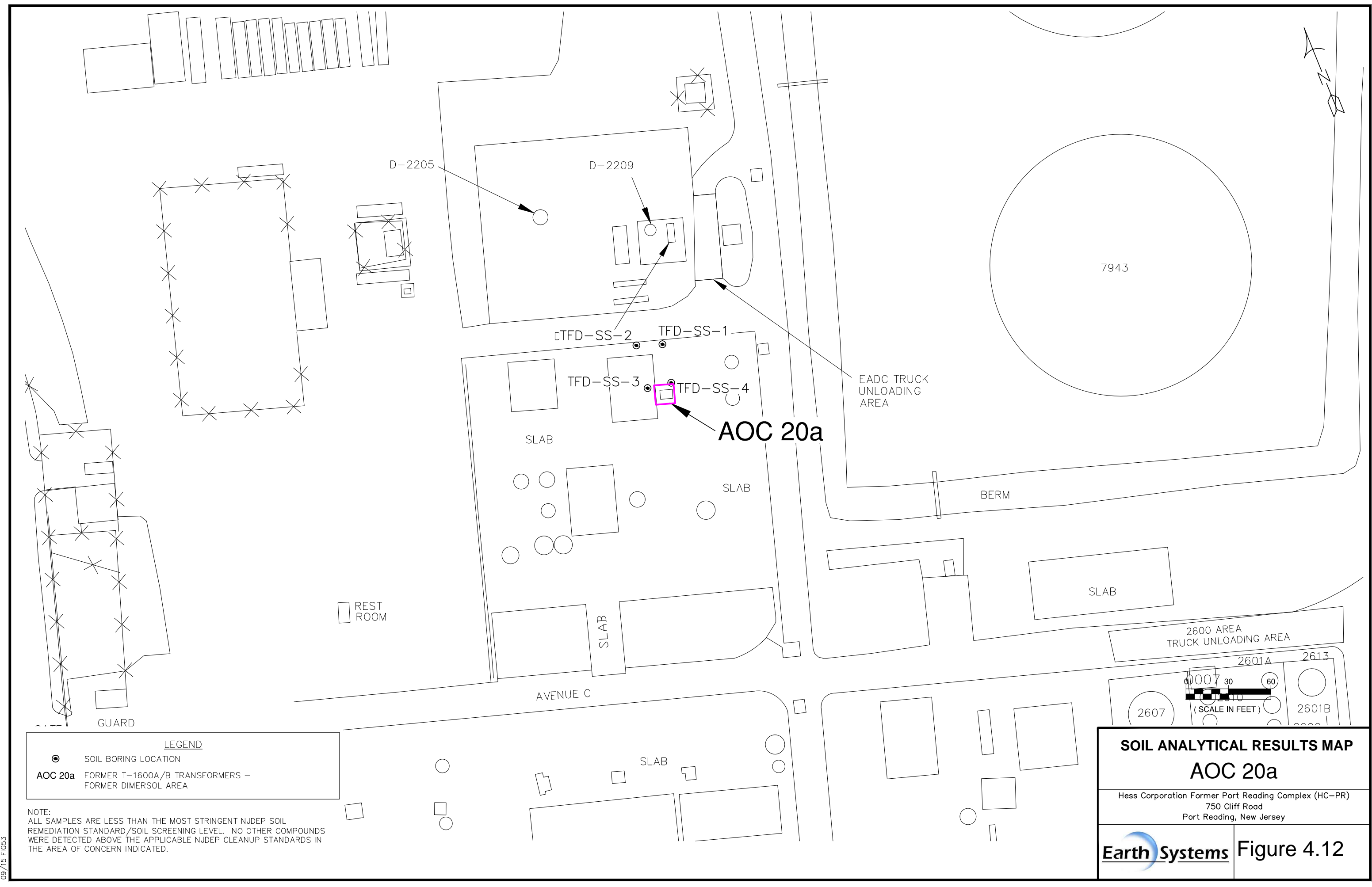










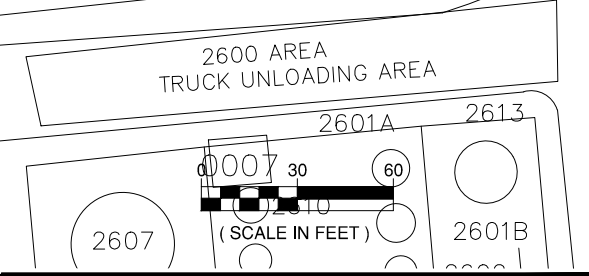


**LEGEND**

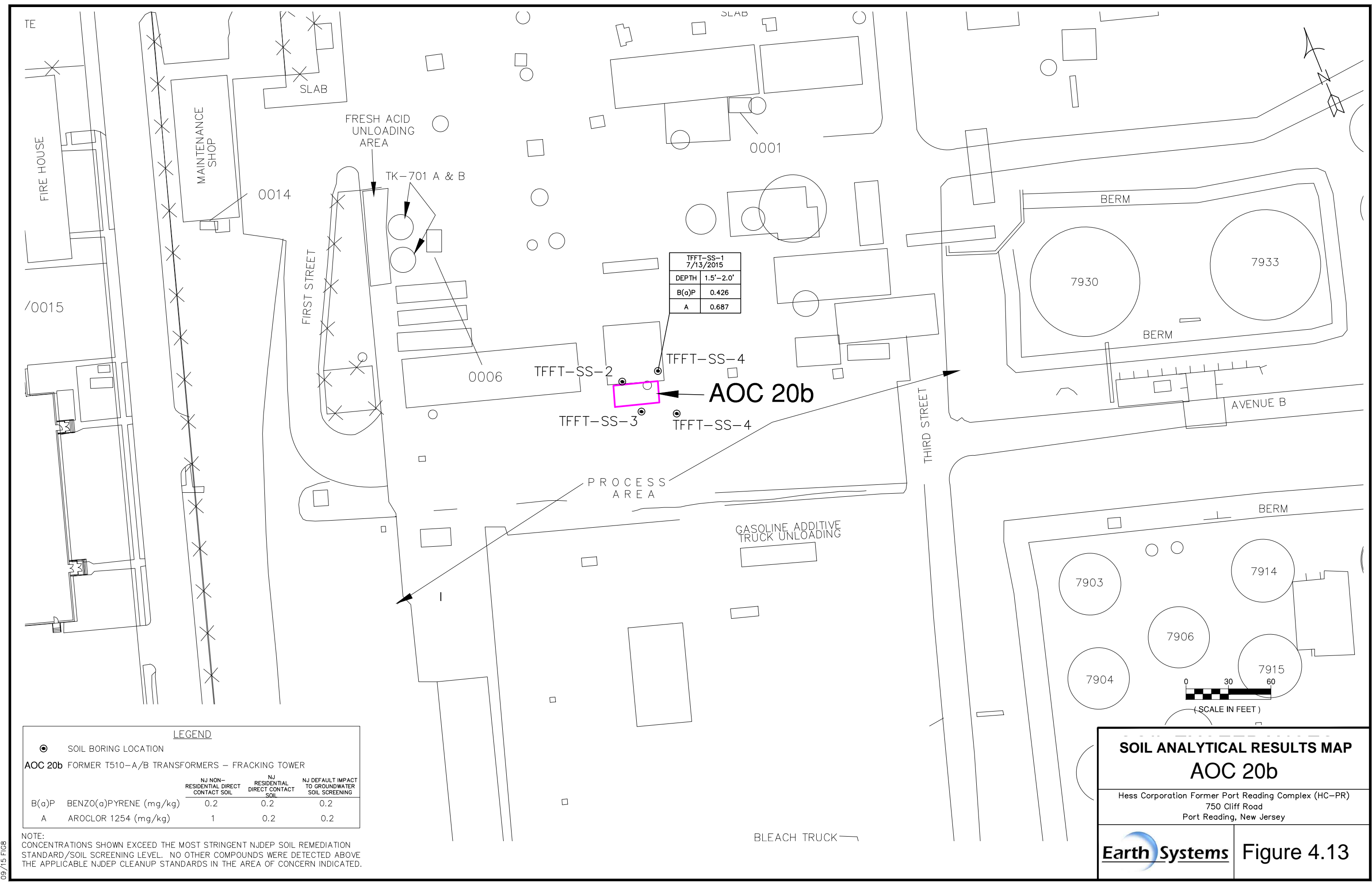
● SOIL BORING LOCATION

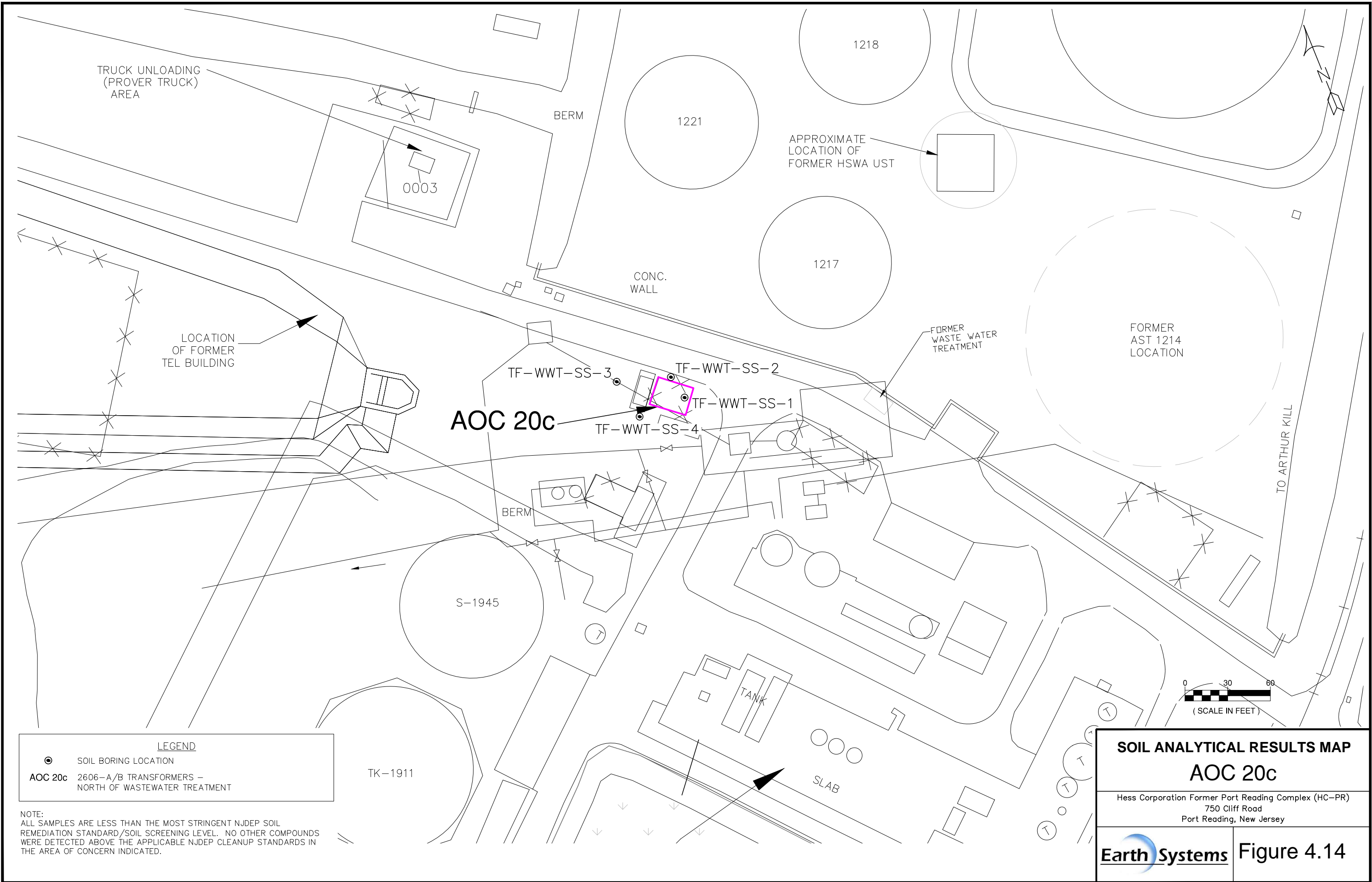
**AOC 20a** FORMER T-1600A/B TRANSFORMERS – FORMER DIMERSOL AREA

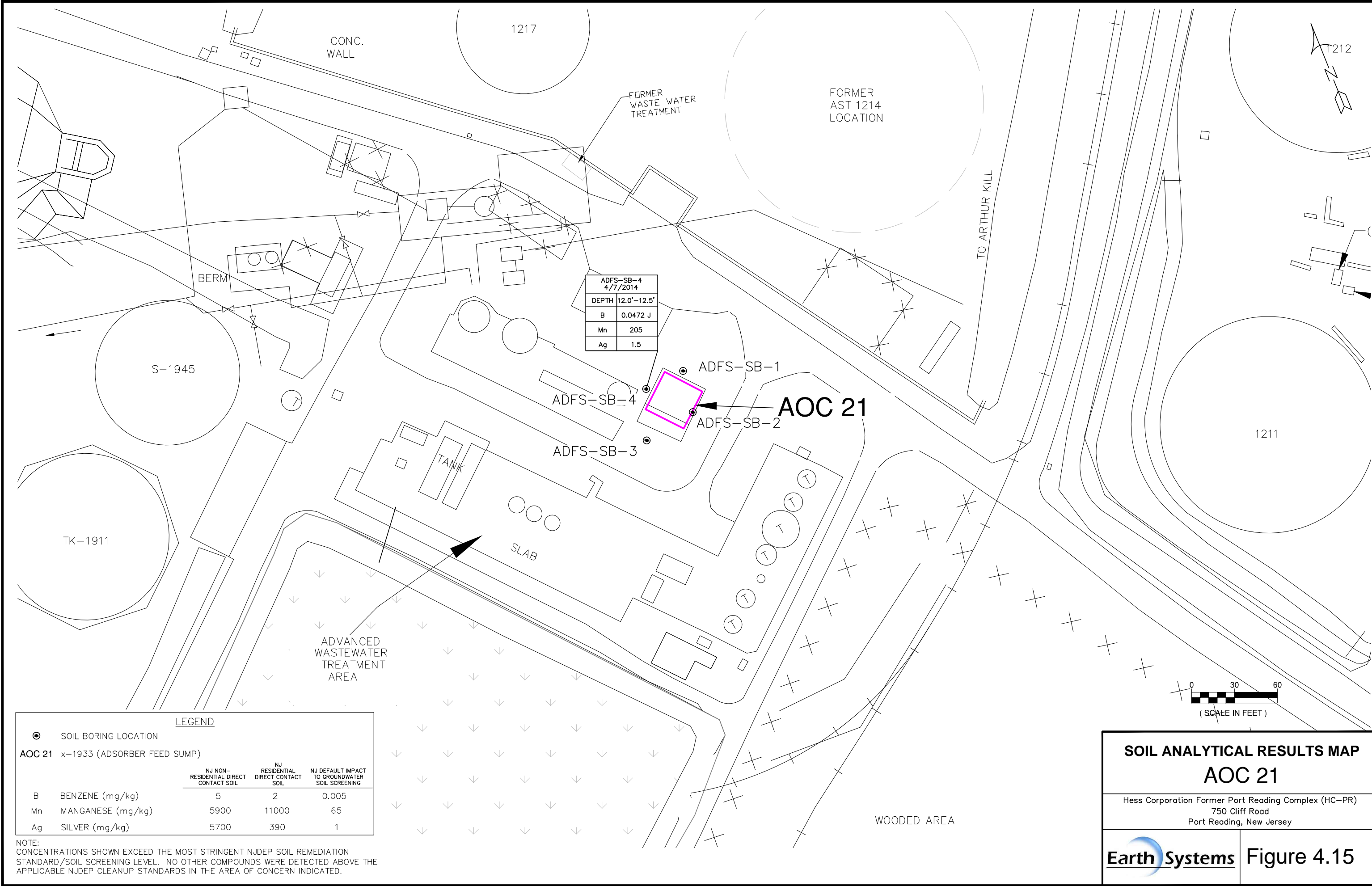
NOTE:  
ALL SAMPLES ARE LESS THAN THE MOST STRINGENT NJDEP SOIL REMEDIATION STANDARD/SOIL SCREENING LEVEL. NO OTHER COMPOUNDS WERE DETECTED ABOVE THE APPLICABLE NJDEP CLEANUP STANDARDS IN THE AREA OF CONCERN INDICATED.



<b>SOIL ANALYTICAL RESULTS MAP</b>	
<b>AOC 20a</b>	
Hess Corporation Former Port Reading Complex (HC-PR) 750 Cliff Road Port Reading, New Jersey	
	<b>Figure 4.12</b>







SOIL BORING LOCATION				
AOC 21 x-1933 (ADSORBER FEED SUMP)				
		NJ NON-RESIDENTIAL DIRECT CONTACT SOIL	NJ RESIDENTIAL DIRECT CONTACT SOIL	NJ DEFAULT IMPACT TO GROUNDWATER SOIL SCREENING
B	BENZENE (mg/kg)	5	2	0.005
Mn	MANGANESE (mg/kg)	5900	11000	65
Ag	SILVER (mg/kg)	5700	390	1

NOTE: CONCENTRATIONS SHOWN EXCEED THE MOST STRINGENT NJDEP SOIL REMEDIATION STANDARD/SOIL SCREENING LEVEL. NO OTHER COMPOUNDS WERE DETECTED ABOVE THE APPLICABLE NJDEP CLEANUP STANDARDS IN THE AREA OF CONCERN INDICATED.

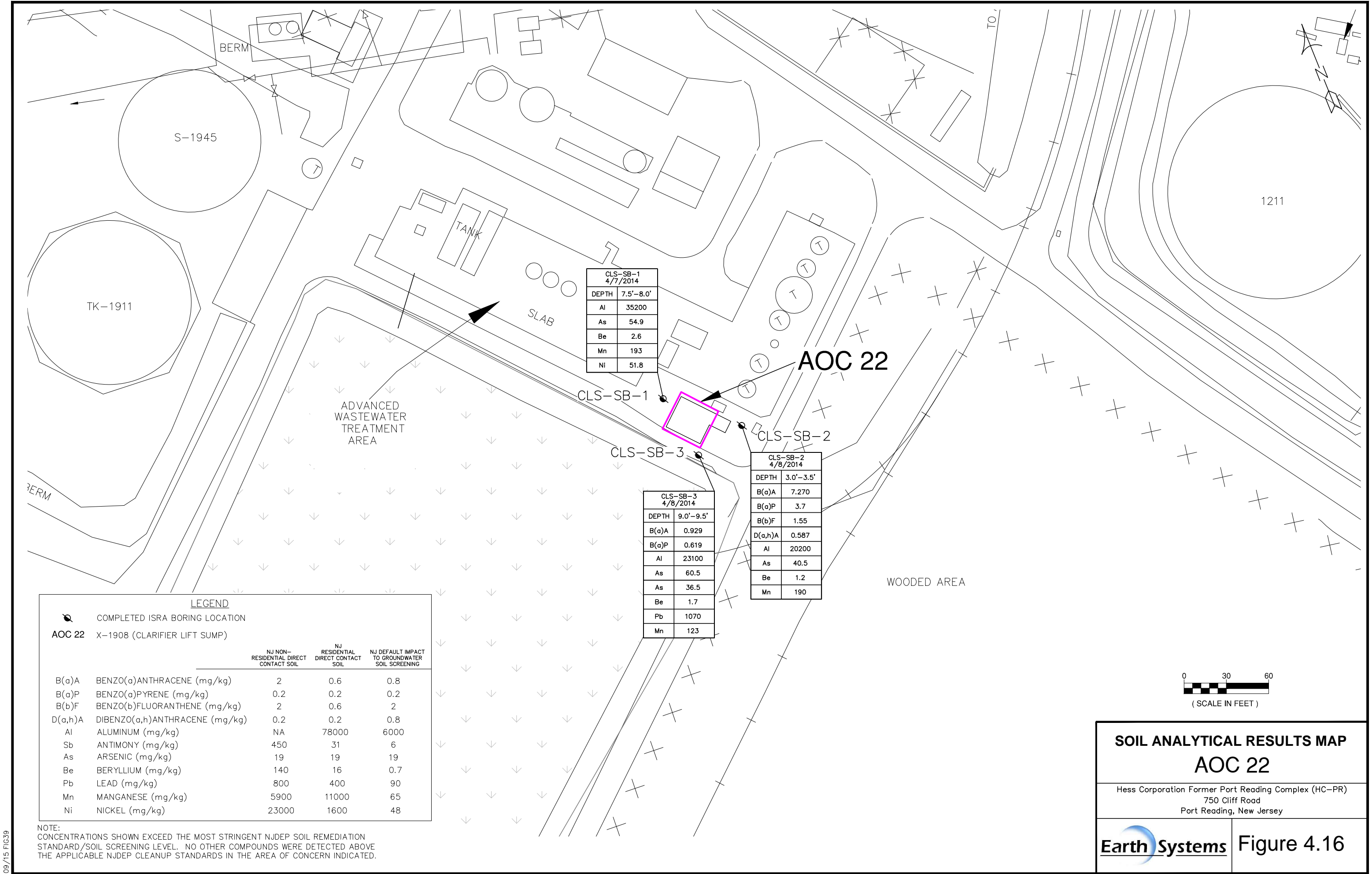
SOIL ANALYTICAL RESULTS MAP  
AOC 21

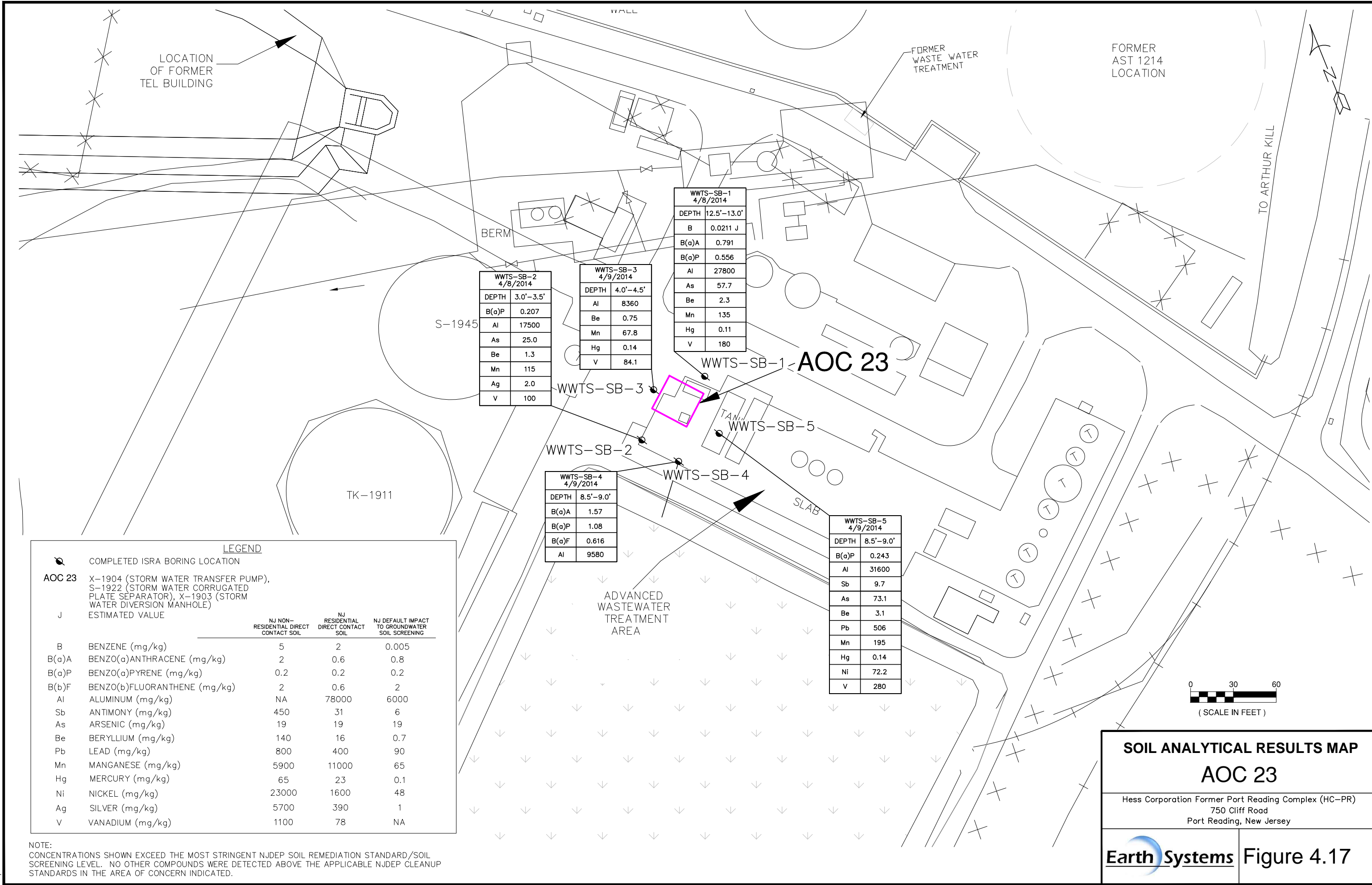
Hess Corporation Former Port Reading Complex (HC-PR)  
750 Cliff Road  
Port Reading, New Jersey



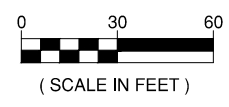
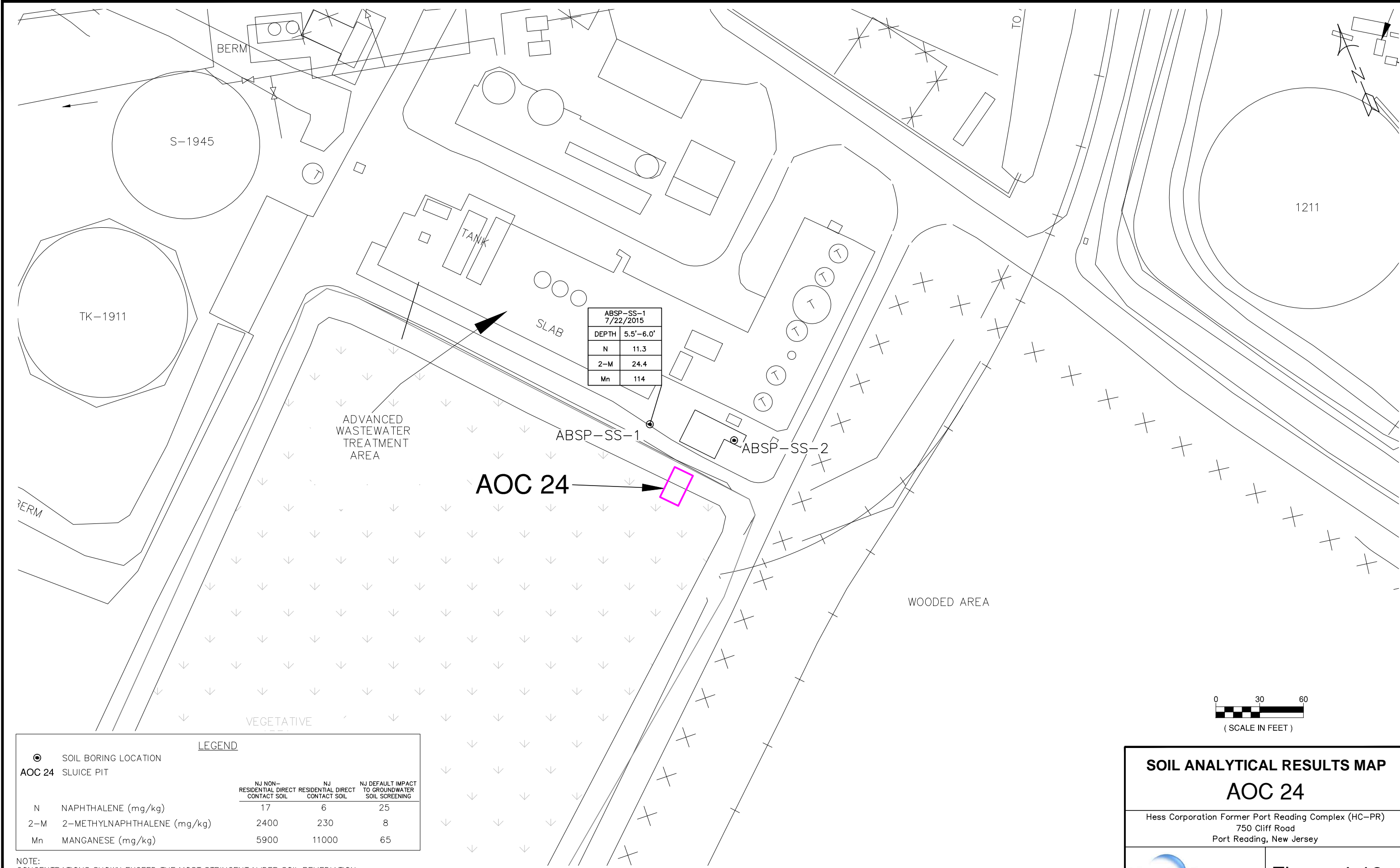
Figure 4.15







NOTE: CONCENTRATIONS SHOWN EXCEED THE MOST STRINGENT NJDEP SOIL REMEDIATION STANDARD/SOIL SCREENING LEVEL. NO OTHER COMPOUNDS WERE DETECTED ABOVE THE APPLICABLE NJDEP CLEANUP STANDARDS IN THE AREA OF CONCERN INDICATED.



**SOIL ANALYTICAL RESULTS MAP**

**AOC 24**

Hess Corporation Former Port Reading Complex (HC-PR)  
750 Cliff Road  
Port Reading, New Jersey

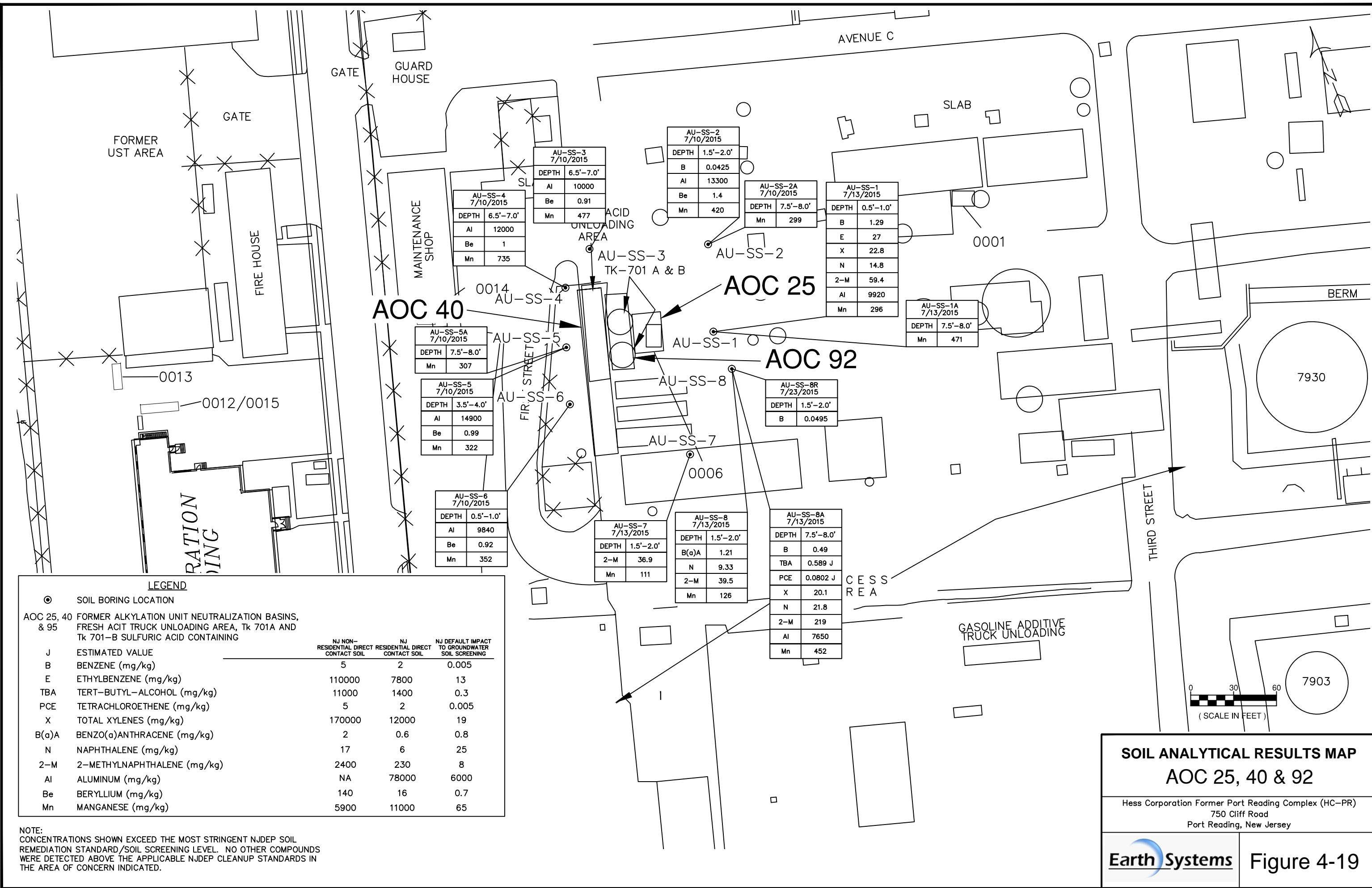
**Figure 4-18**

09/15 FIG9



D:\Clients\Earth Systems\Hess\OLD FIGS\basemap1\_SOIL\_EXCEEDANCES.dwg, FIG10\_AOC 25 40 & 92, 10/21/2015 12:56:33 PM, Pinnacle

09/15 FIG10



LEGEND				
●	SOIL BORING LOCATION			
AOC 25, 40 & 95	FORMER ALKYLATION UNIT NEUTRALIZATION BASINS, FRESH ACIT TRUCK UNLOADING AREA, TK 701A AND Tk 701-B SULFURIC ACID CONTAINING			
J	ESTIMATED VALUE			
B	BENZENE (mg/kg)	5	2	0.005
E	ETHYLBENZENE (mg/kg)	110000	7800	13
TBA	TERT-BUTYL-ALCOHOL (mg/kg)	11000	1400	0.3
PCE	TETRACHLOROETHENE (mg/kg)	5	2	0.005
X	TOTAL XYLENES (mg/kg)	170000	12000	19
B(a)A	BENZO(a)ANTHRACENE (mg/kg)	2	0.6	0.8
N	NAPHTHALENE (mg/kg)	17	6	25
2-M	2-METHYLNAPHTHALENE (mg/kg)	2400	230	8
Al	ALUMINUM (mg/kg)	NA	78000	6000
Be	BERYLLIUM (mg/kg)	140	16	0.7
Mn	MANGANESE (mg/kg)	5900	11000	65

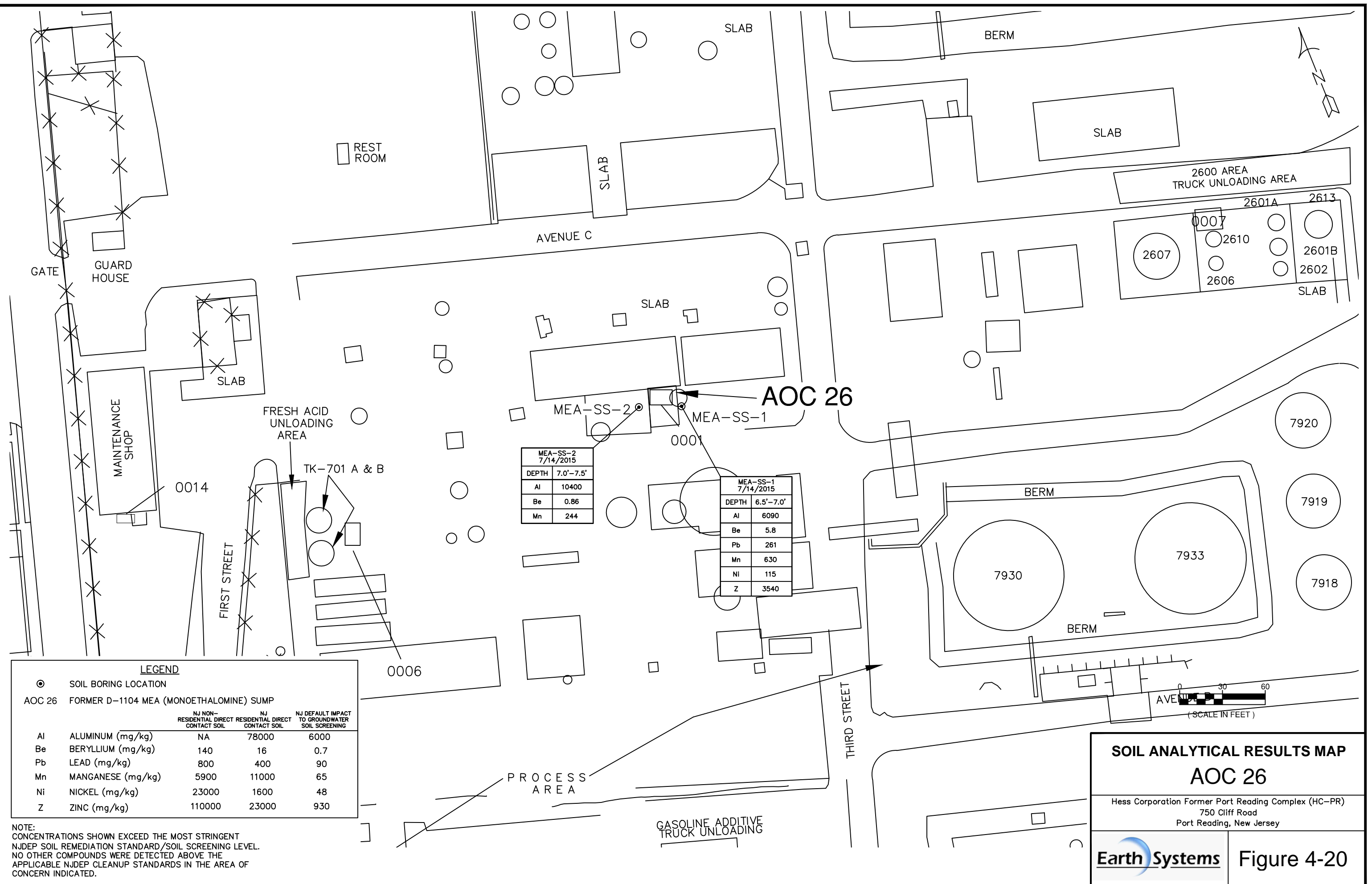
NOTE:  
CONCENTRATIONS SHOWN EXCEED THE MOST STRINGENT NJDEP SOIL REMEDIATION STANDARD/SOIL SCREENING LEVEL. NO OTHER COMPOUNDS WERE DETECTED ABOVE THE APPLICABLE NJDEP CLEANUP STANDARDS IN THE AREA OF CONCERN INDICATED.

SOIL ANALYTICAL RESULTS MAP  
AOC 25, 40 & 92

Hess Corporation Former Port Reading Complex (HC-PR)  
750 Cliff Road  
Port Reading, New Jersey

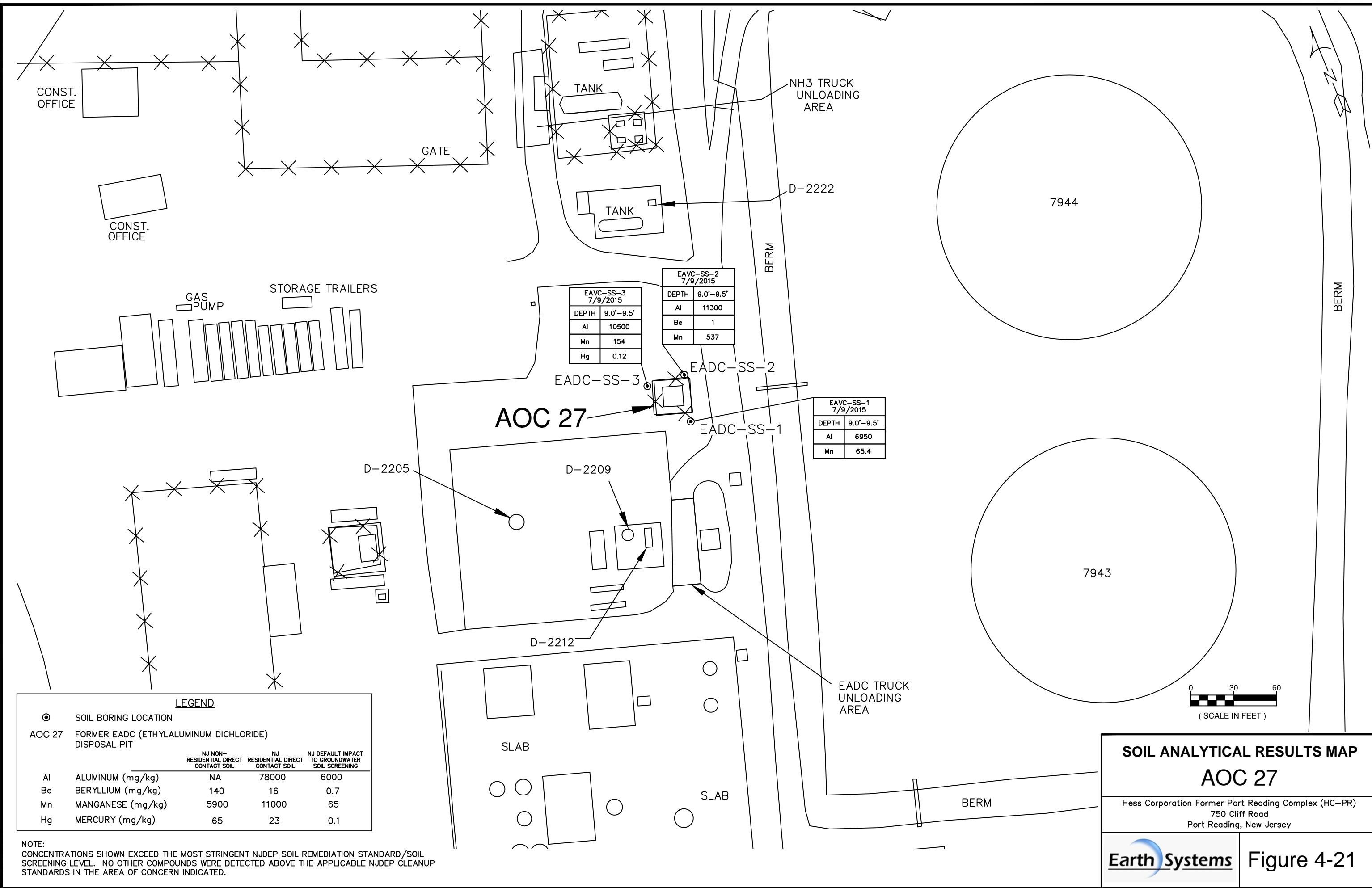
Earth Systems

Figure 4-19

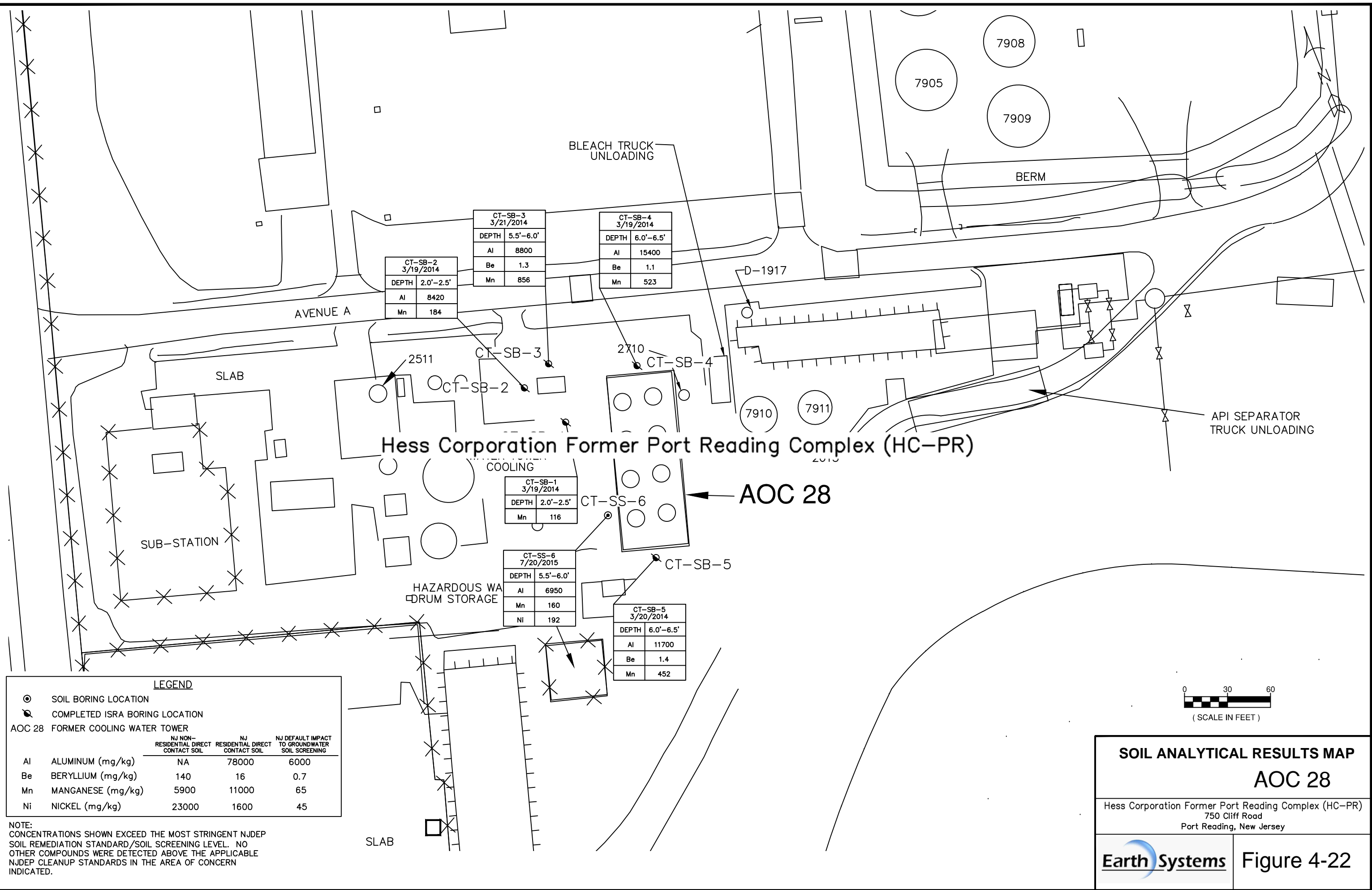


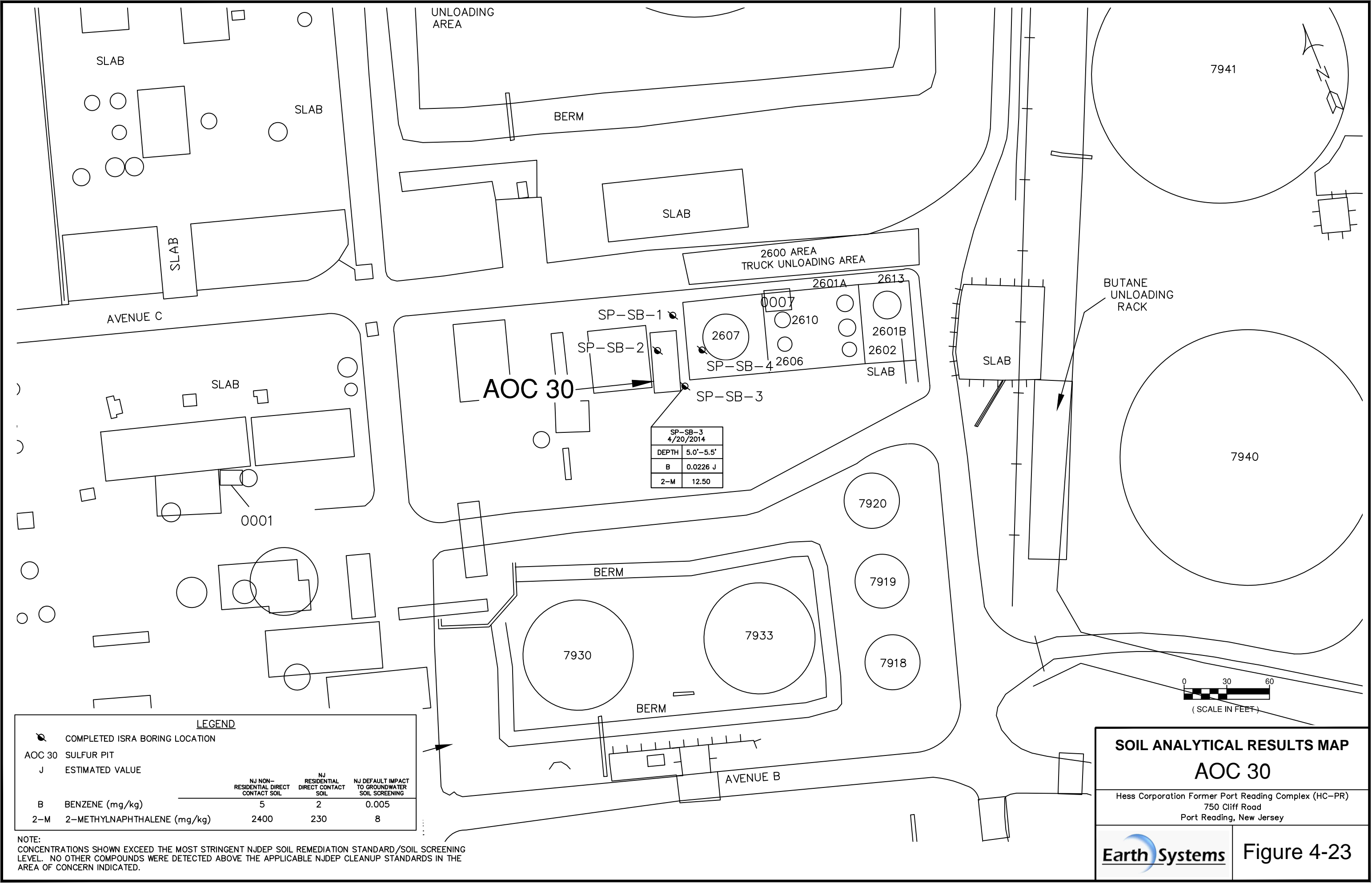
D:\Clients\Earth Systems\Hess\OLD FIGS\basemap1\_SOIL EXCEEDANCES.dwg, FIG12\_AOC 27, 10/21/2015 12:57:04 PM, Pinnacle

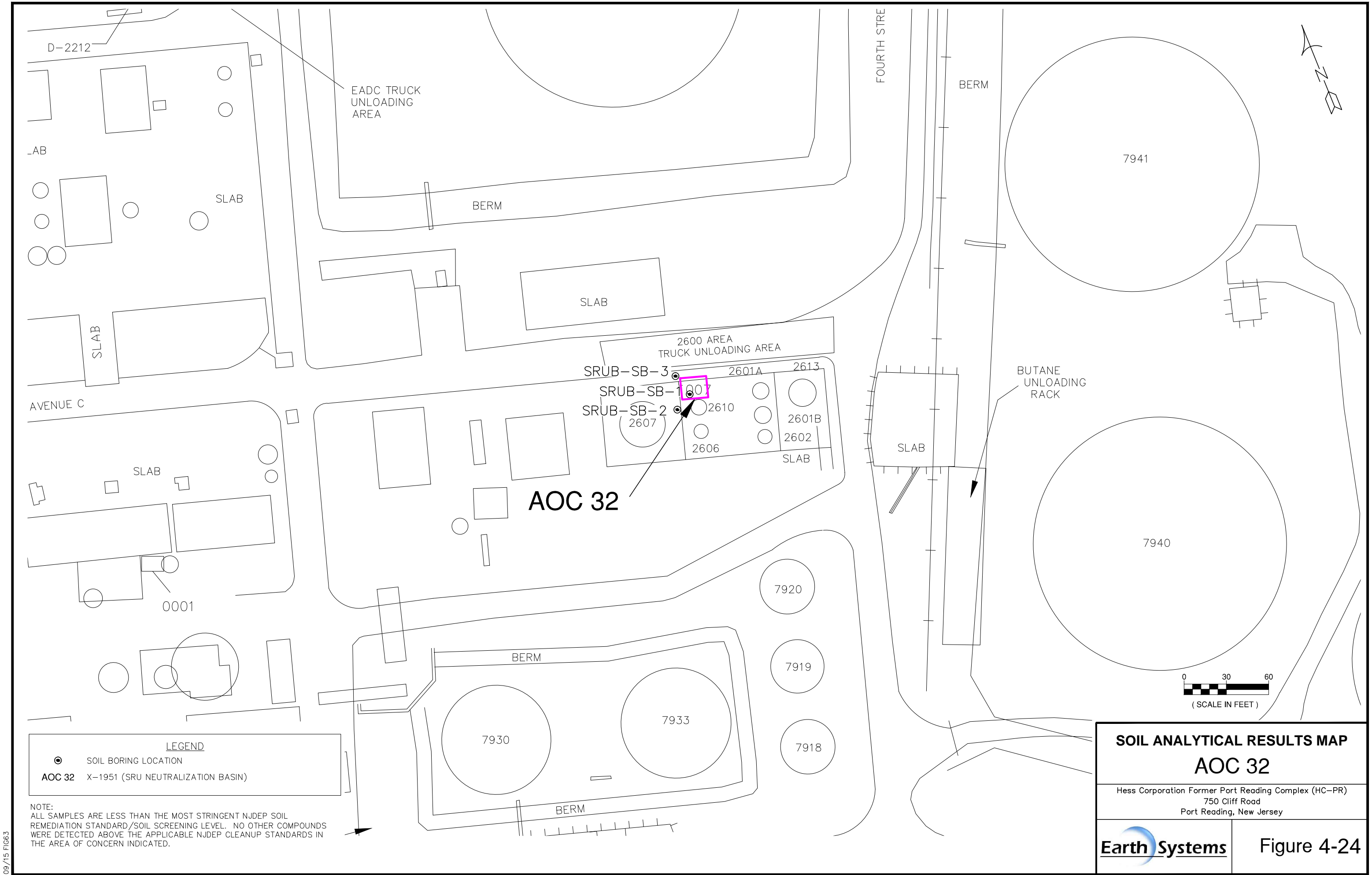
09/15 FIG12







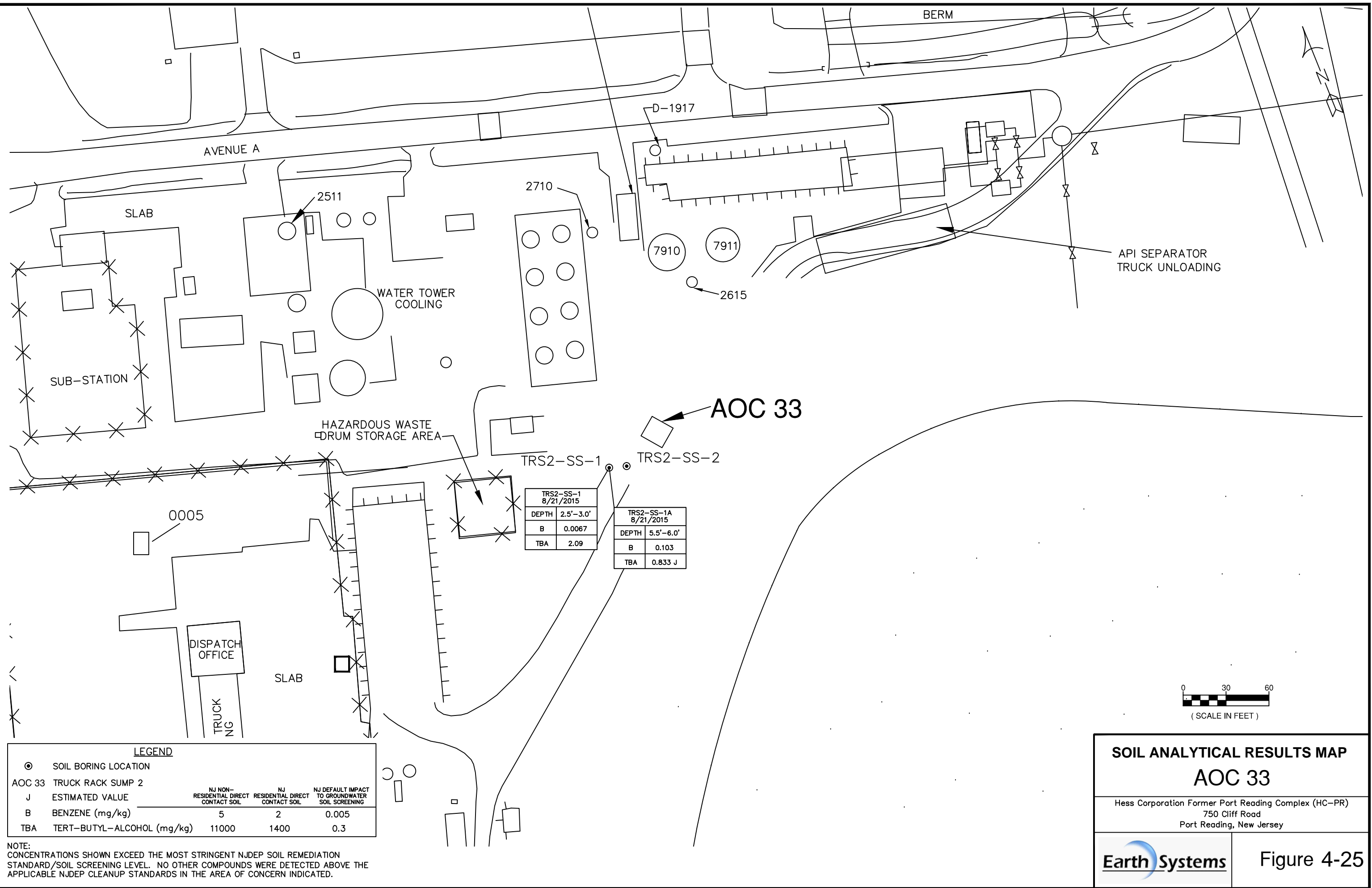


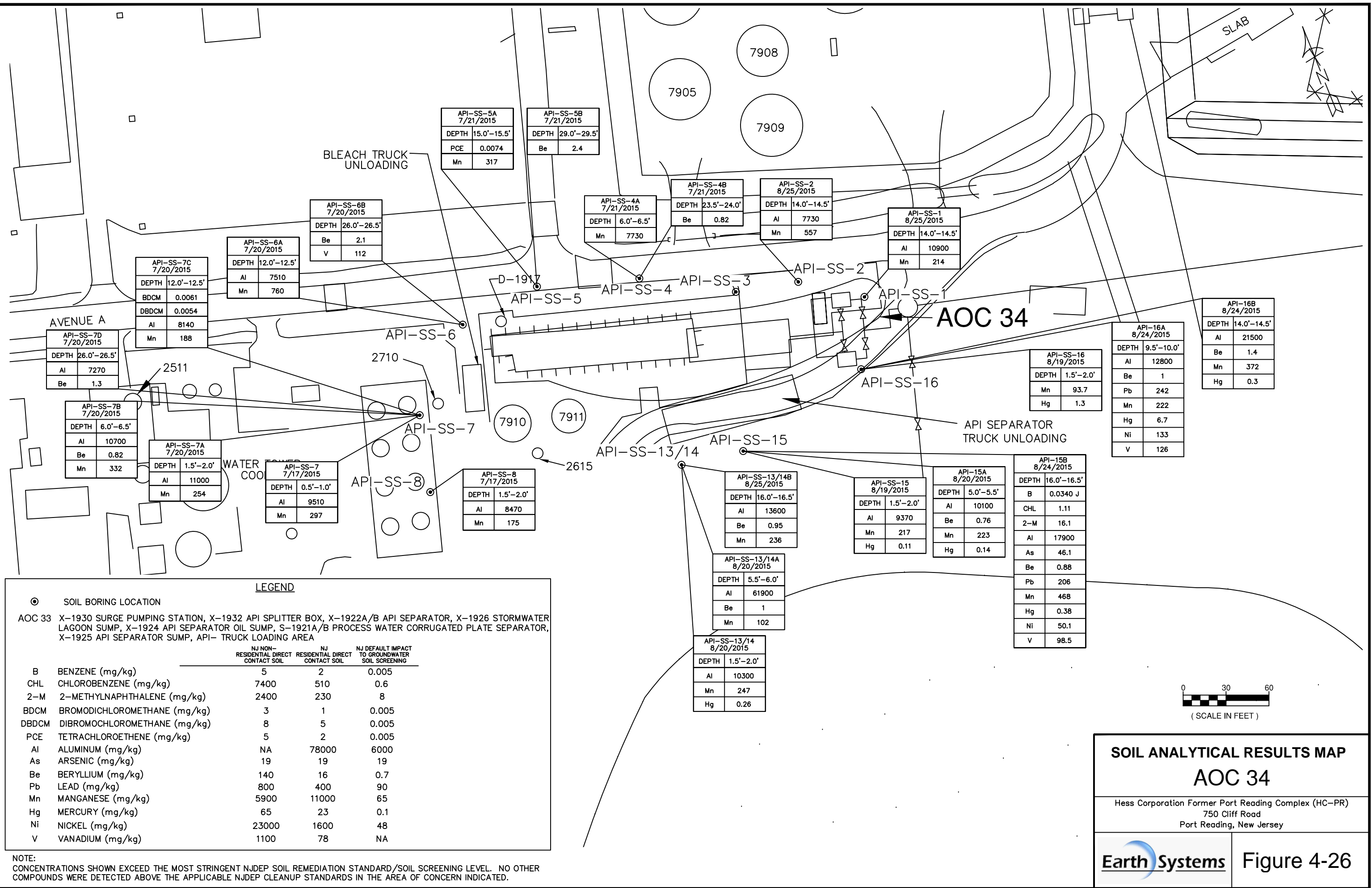


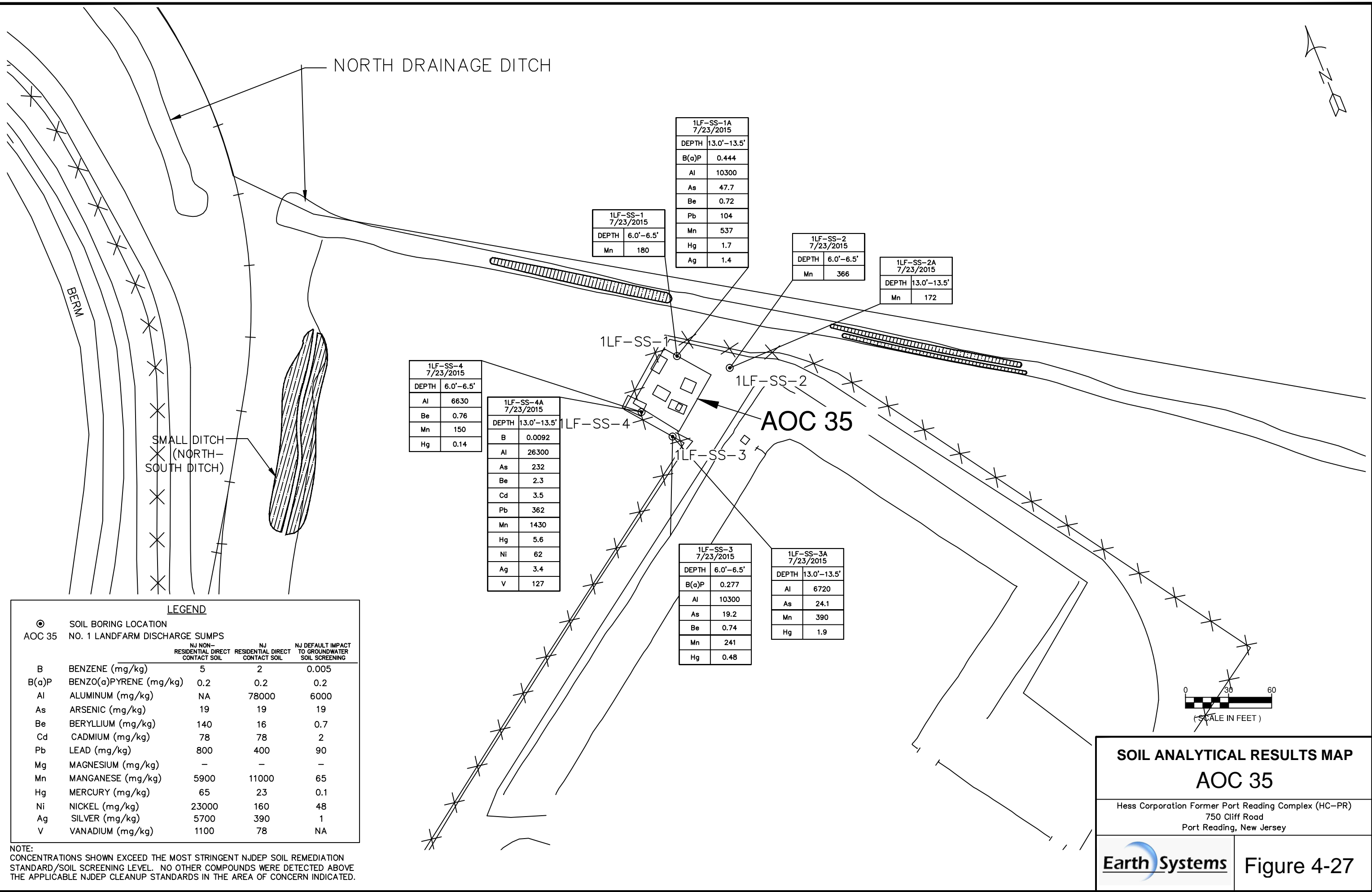


D:\Clients\Earth Systems\Hess\OLD FIGS\basemap1\_SOIL EXCEEDANCES.dwg, FIG14\_AOC 33, 10/21/2015 12:57:35 PM, Pinnacle

09/15 FIG14



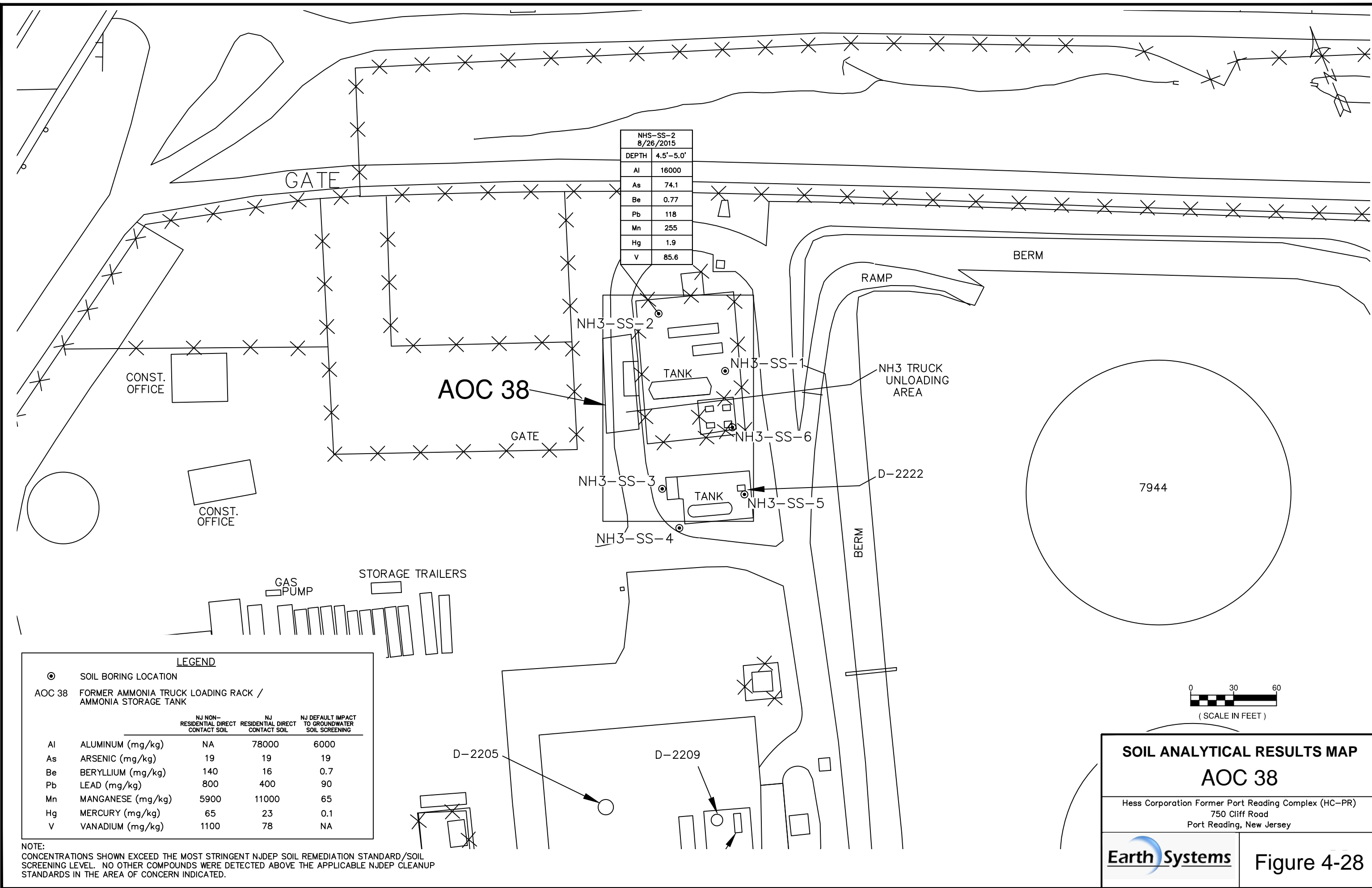






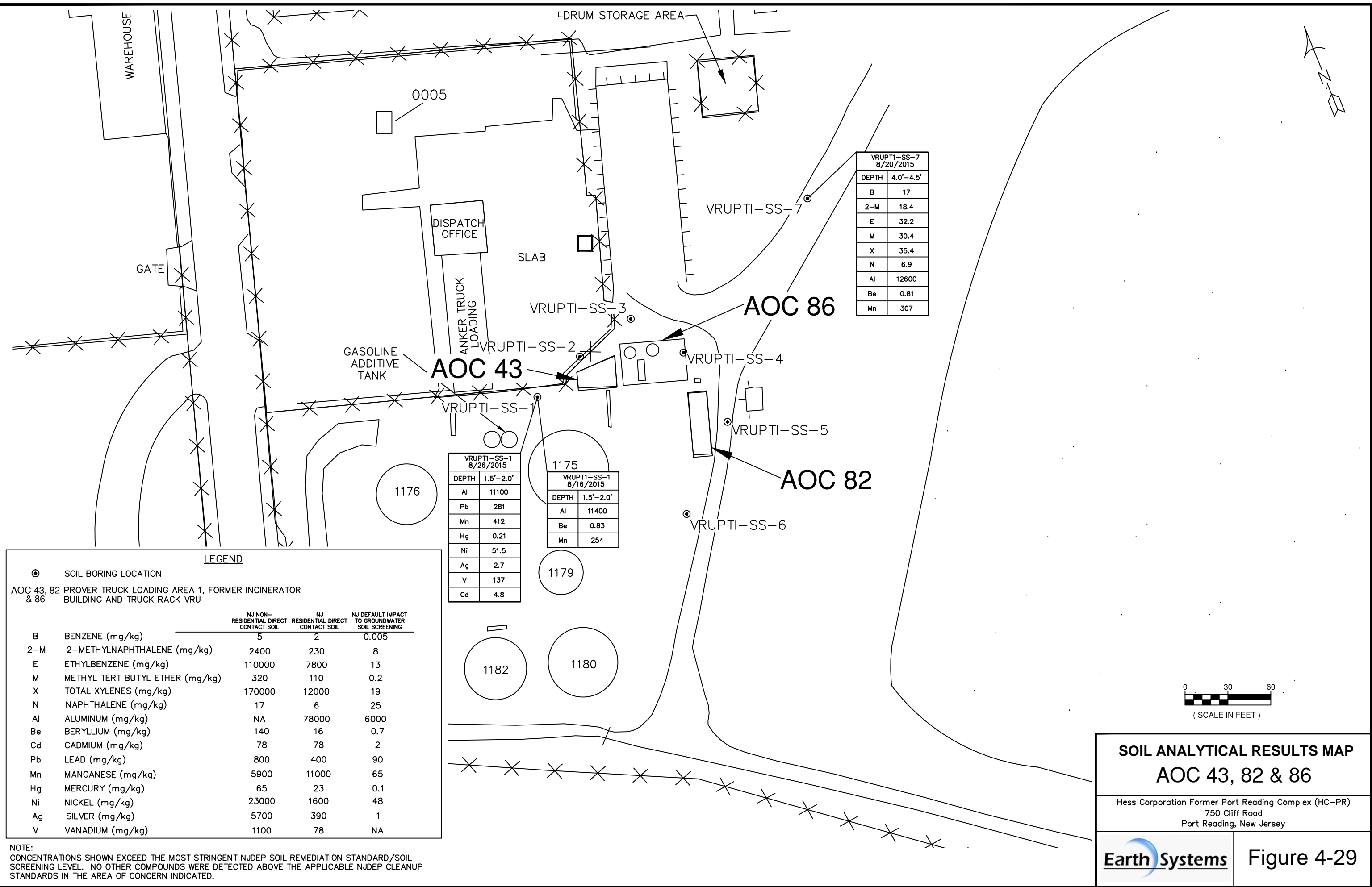
D:\Clients\Earth Systems\Hess\OLD FIGS\basemap1\_SOIL EXCEEDANCES.dwg, FIG17\_AOC 38, 10/21/2015 12:58:21 PM, Pinnacle

09/15 FIG17



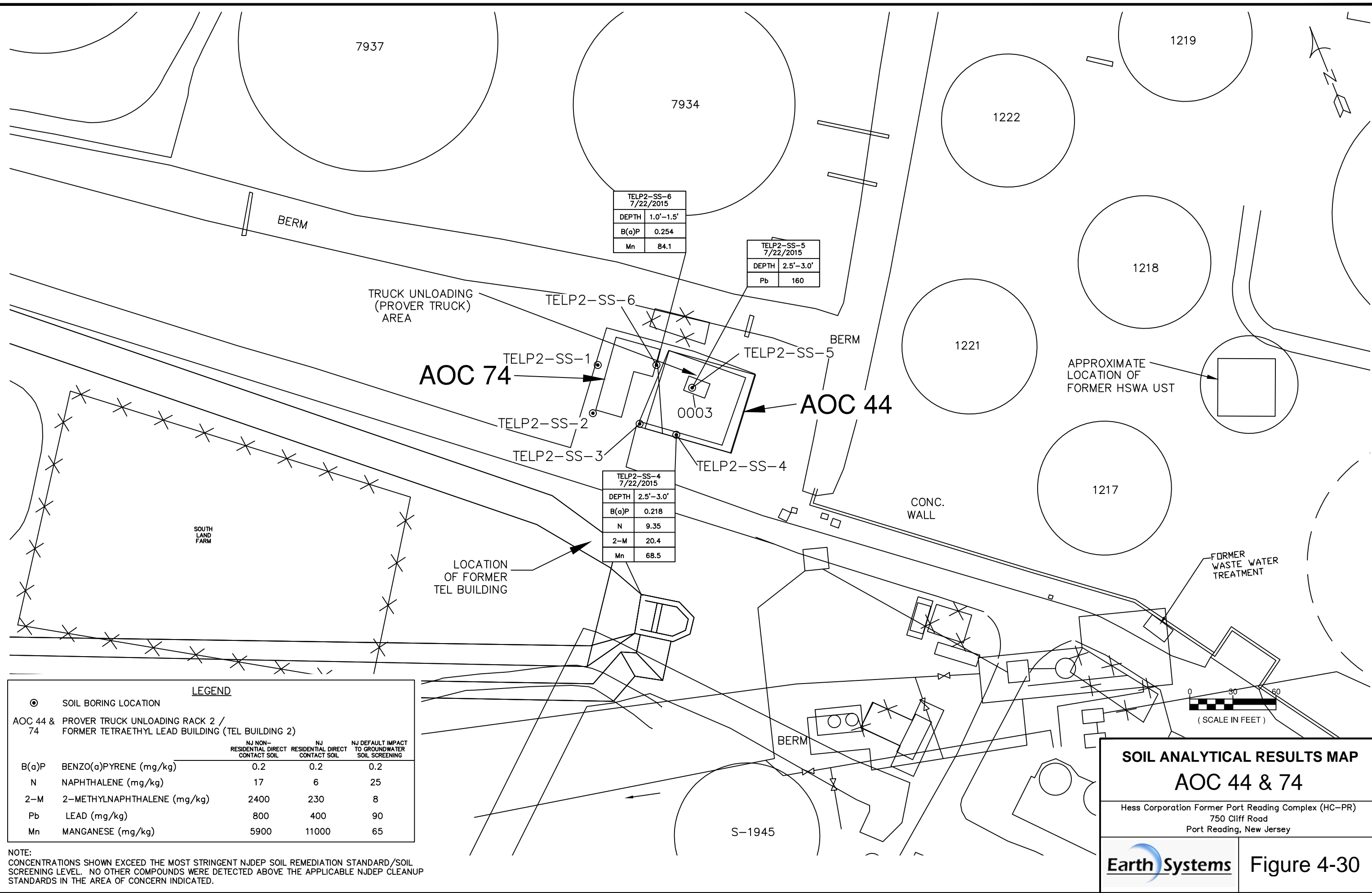
D:\Clients\Earth Systems\Hess\OLD FIGS\basemap1\_SOIL EXCEEDANCES.dwg, FIG18\_AOC 43 82 & 86, 10/21/2015 12:58:37 PM, Pinnacle

09/15 FIG18



D:\Clients\Earth Systems\Hess\OLD FIGS\basemap1\_SOIL EXCEEDANCES.dwg, FIG19\_AOC 44 & 74, 10/21/2015 12:58:51 PM, Pinnacle

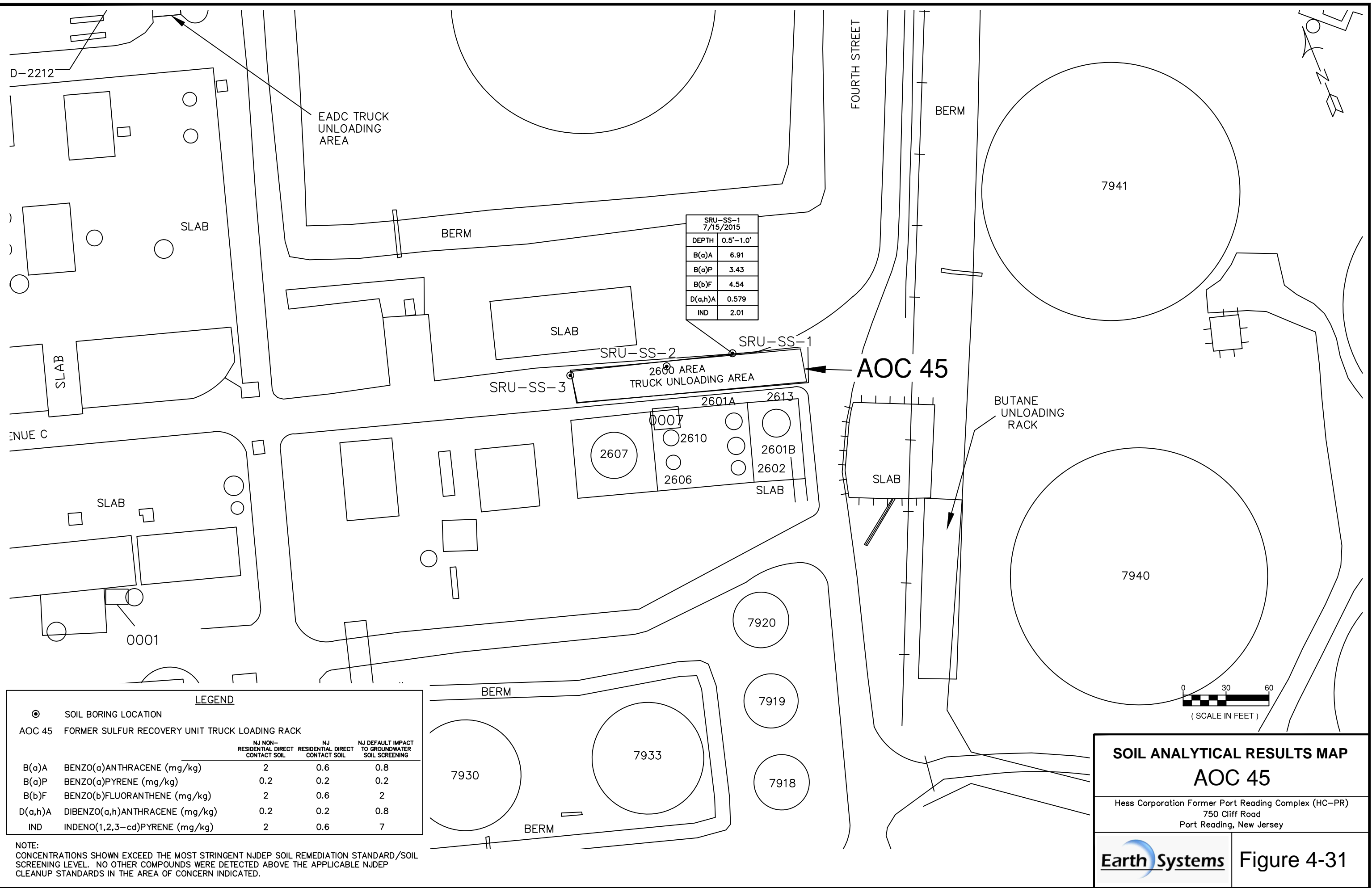
09/15 FIG19





D:\Clients\Earth Systems\Hess\OLD FIGS\basemap1\_SOIL EXCEEDANCES.dwg, FIG20\_AOC 45, 10/21/2015 12:59:05 PM, Pinnacle

09/15 FIG20



LEGEND				
⊙	SOIL BORING LOCATION			
AOC 45	FORMER SULFUR RECOVERY UNIT TRUCK LOADING RACK			
		NJ NON-RESIDENTIAL DIRECT CONTACT SOIL	NJ RESIDENTIAL DIRECT CONTACT SOIL	NJ DEFAULT IMPACT TO GROUNDWATER SOIL SCREENING
B(a)A	BENZO(a)ANTHRACENE (mg/kg)	2	0.6	0.8
B(a)P	BENZO(a)PYRENE (mg/kg)	0.2	0.2	0.2
B(b)F	BENZO(b)FLUORANTHENE (mg/kg)	2	0.6	2
D(a,h)A	DIBENZO(a,h)ANTHRACENE (mg/kg)	0.2	0.2	0.8
IND	INDENO(1,2,3-cd)PYRENE (mg/kg)	2	0.6	7

NOTE:  
CONCENTRATIONS SHOWN EXCEED THE MOST STRINGENT NJDEP SOIL REMEDIATION STANDARD/SOIL SCREENING LEVEL. NO OTHER COMPOUNDS WERE DETECTED ABOVE THE APPLICABLE NJDEP CLEANUP STANDARDS IN THE AREA OF CONCERN INDICATED.

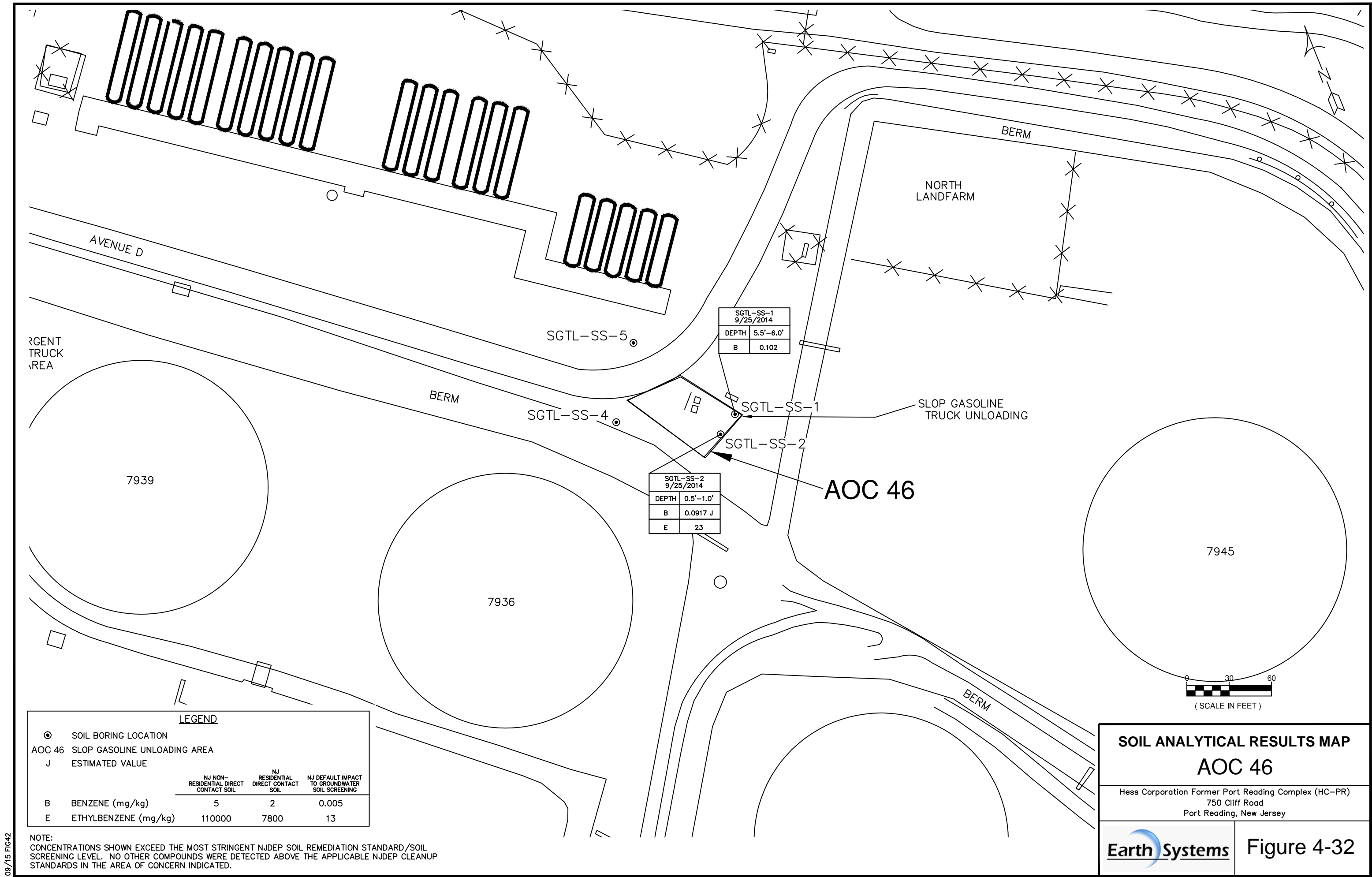
SOIL ANALYTICAL RESULTS MAP  
AOC 45

Hess Corporation Former Port Reading Complex (HC-PR)  
750 Cliff Road  
Port Reading, New Jersey

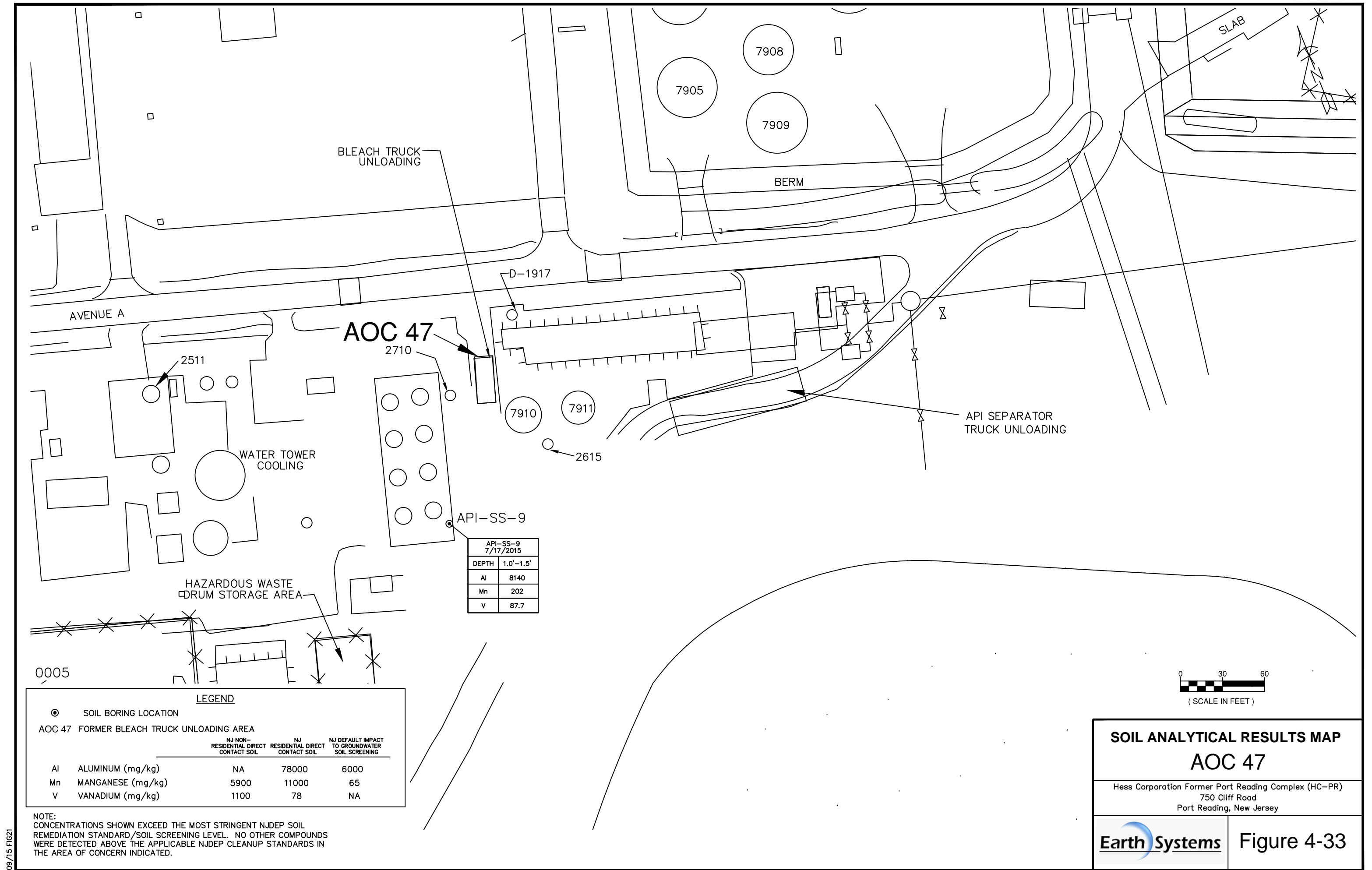
Earth Systems

Figure 4-31

D:\Clients\Earth Systems\Hess\OLD FIGS\basemap1\_SOIL EXCEEDANCES.dwg, FIG42\_AOC 46, 10/21/2015 1:07:40 PM, Pinnacle



D:\Clients\Earth Systems\Hess\OLD FIGS\basemap1\_SOIL EXCEEDANCES.dwg, FIG21\_AOC 47, 10/21/2015 12:59:21 PM, Pinnacle



09/15 FIG21

● SOIL BORING LOCATION				
AOC 47 FORMER BLEACH TRUCK UNLOADING AREA				
		NJ NON-RESIDENTIAL DIRECT CONTACT SOIL	NJ RESIDENTIAL DIRECT CONTACT SOIL	NJ DEFAULT IMPACT TO GROUNDWATER SOIL SCREENING
Al	ALUMINUM (mg/kg)	NA	78000	6000
Mn	MANGANESE (mg/kg)	5900	11000	65
V	VANADIUM (mg/kg)	1100	78	NA

NOTE:  
CONCENTRATIONS SHOWN EXCEED THE MOST STRINGENT NJDEP SOIL REMEDIATION STANDARD/SOIL SCREENING LEVEL. NO OTHER COMPOUNDS WERE DETECTED ABOVE THE APPLICABLE NJDEP CLEANUP STANDARDS IN THE AREA OF CONCERN INDICATED.

API-SS-9 7/17/2015	
DEPTH	1.0'-1.5'
Al	8140
Mn	202
V	87.7

SOIL ANALYTICAL RESULTS MAP

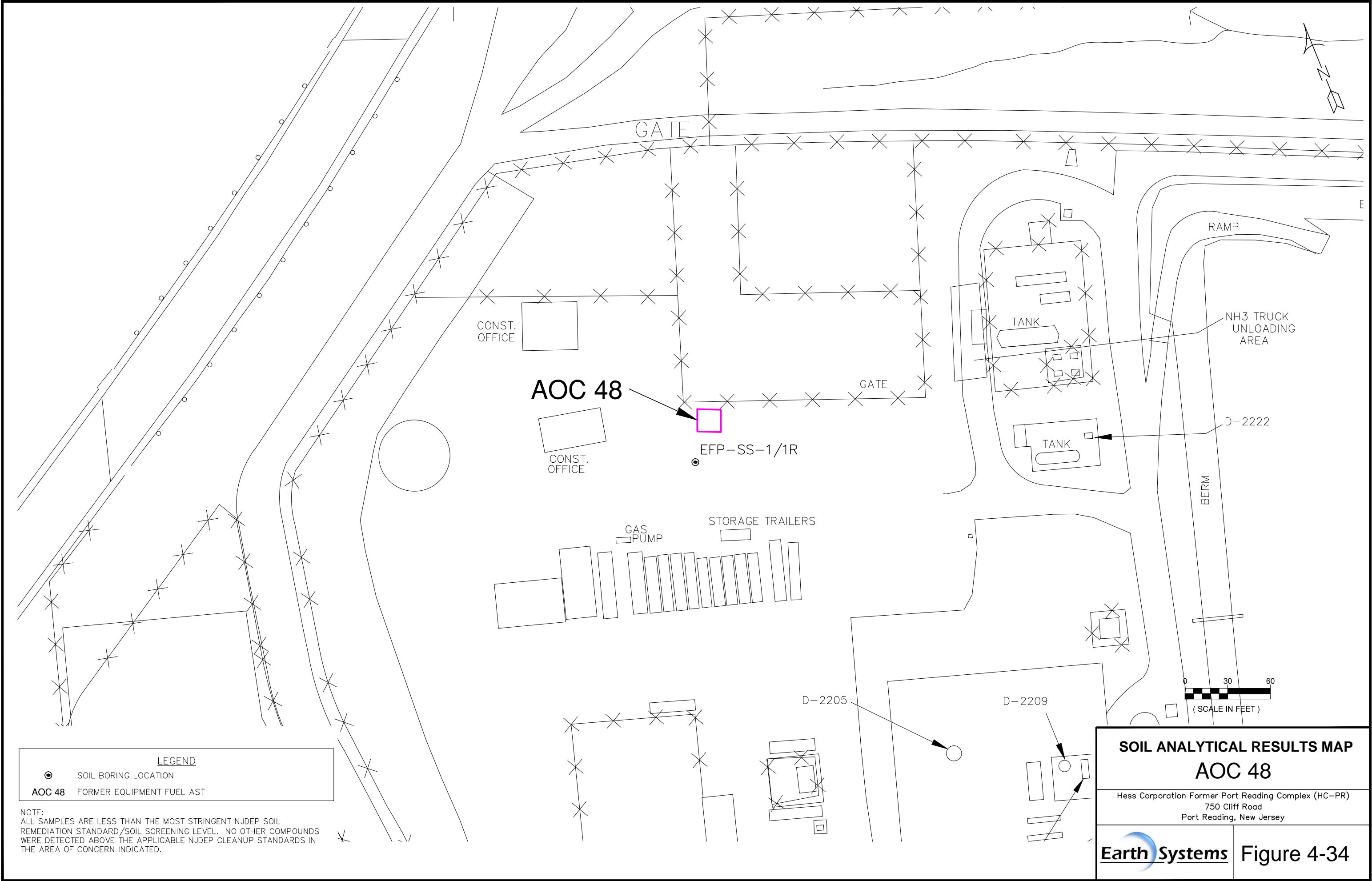
AOC 47

Hess Corporation Former Port Reading Complex (HC-PR)  
750 Cliff Road  
Port Reading, New Jersey

Earth Systems

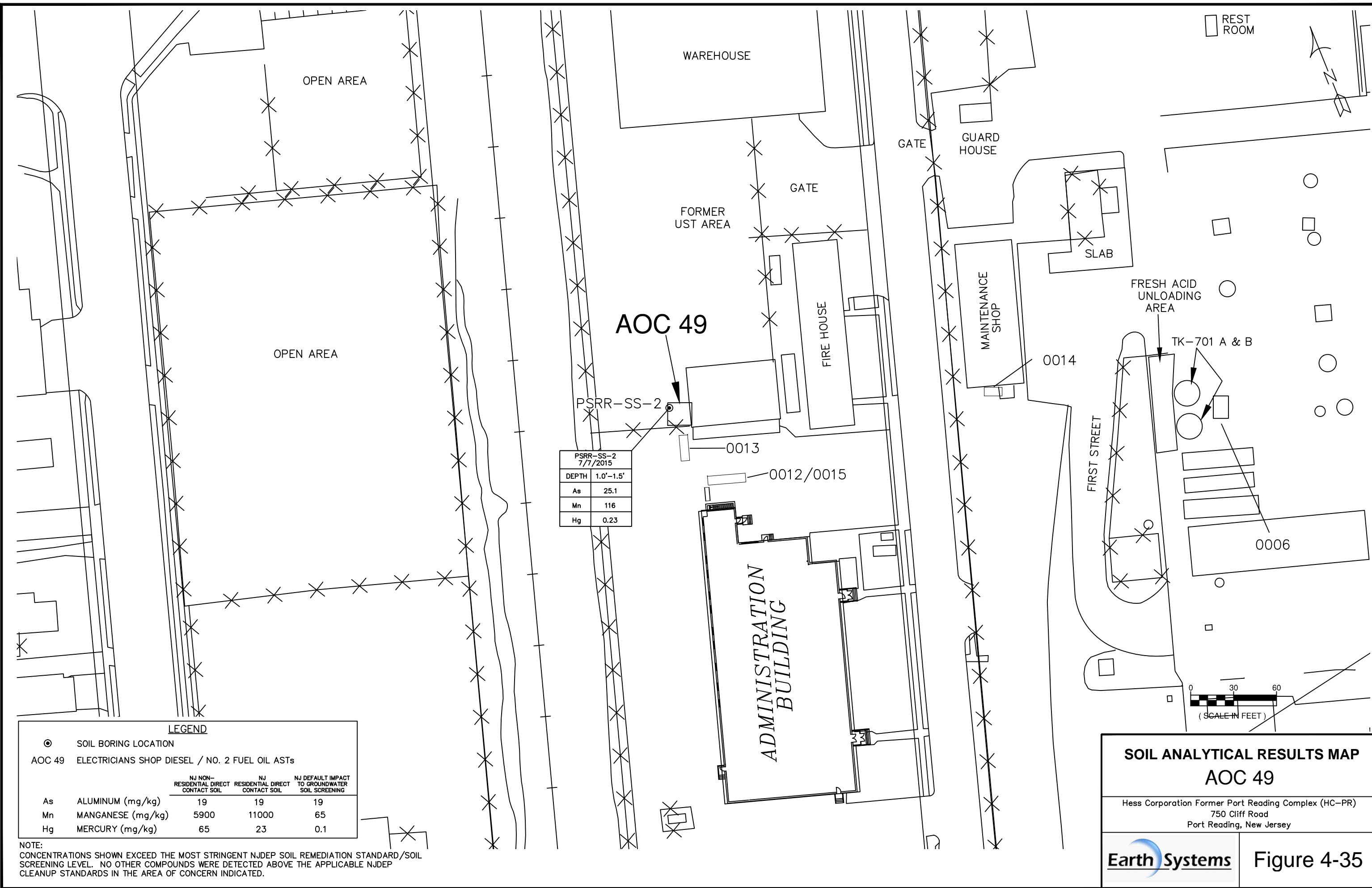
Figure 4-33





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09/15 FIG10

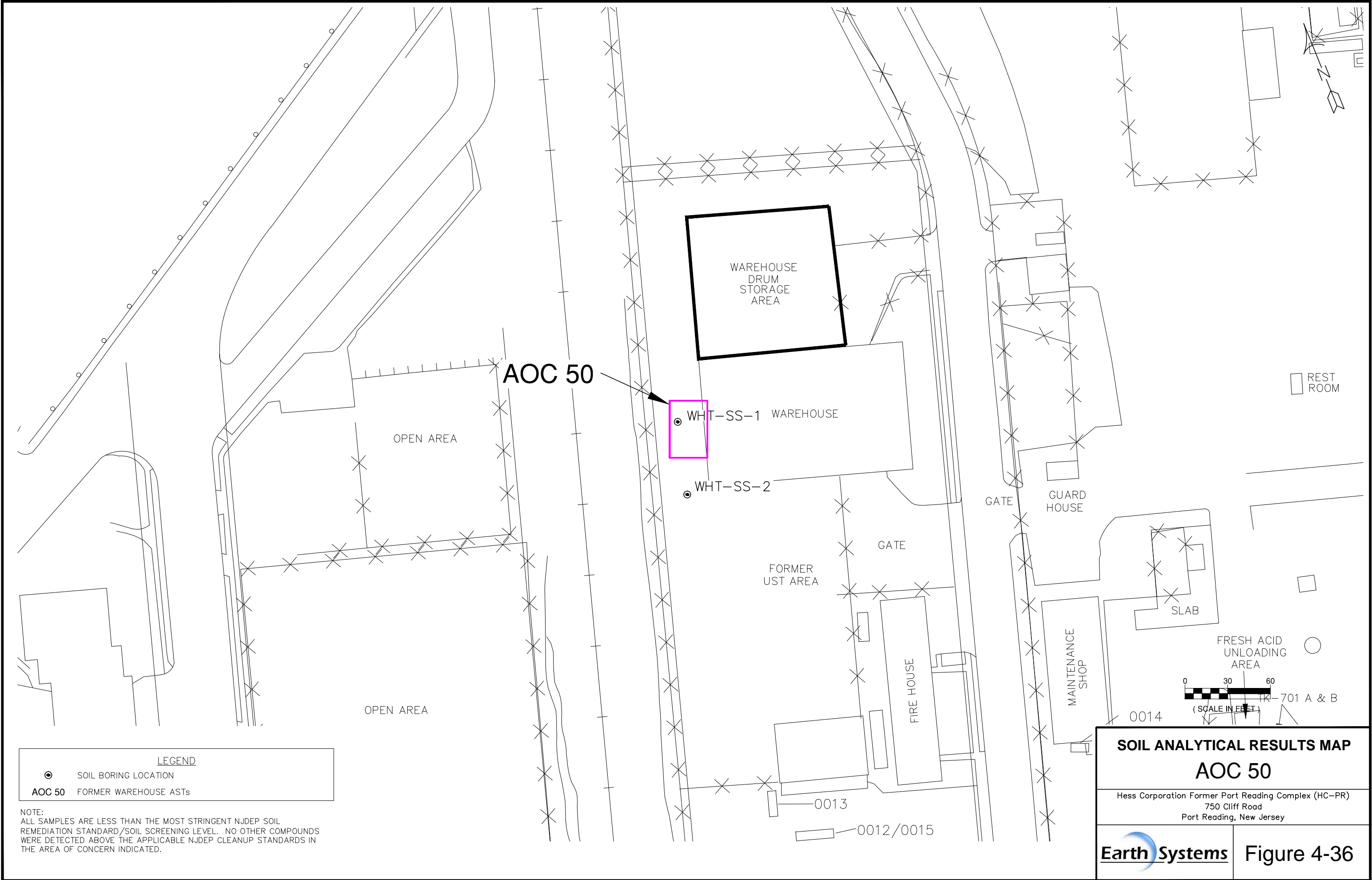


**SOIL ANALYTICAL RESULTS MAP**  
**AOC 49**

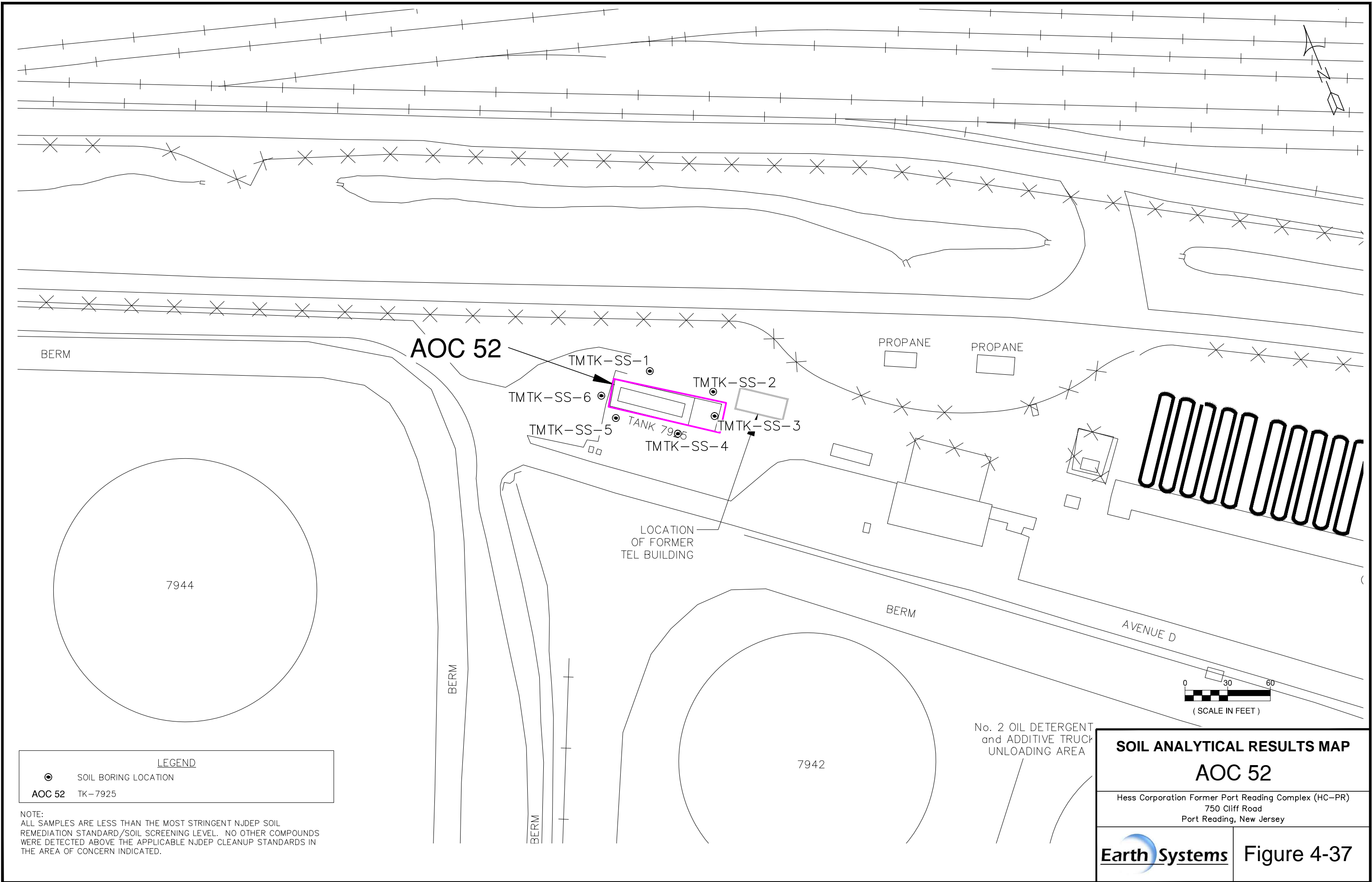
Hess Corporation Former Port Reading Complex (HC-PR)  
750 Cliff Road  
Port Reading, New Jersey

Earth Systems

**Figure 4-35**







● SOIL BORING LOCATION

AOC 52 TK-7925

NOTE:  
ALL SAMPLES ARE LESS THAN THE MOST STRINGENT NJDEP SOIL  
REMEDIATION STANDARD/SOIL SCREENING LEVEL. NO OTHER COMPOUNDS  
WERE DETECTED ABOVE THE APPLICABLE NJDEP CLEANUP STANDARDS IN  
THE AREA OF CONCERN INDICATED.

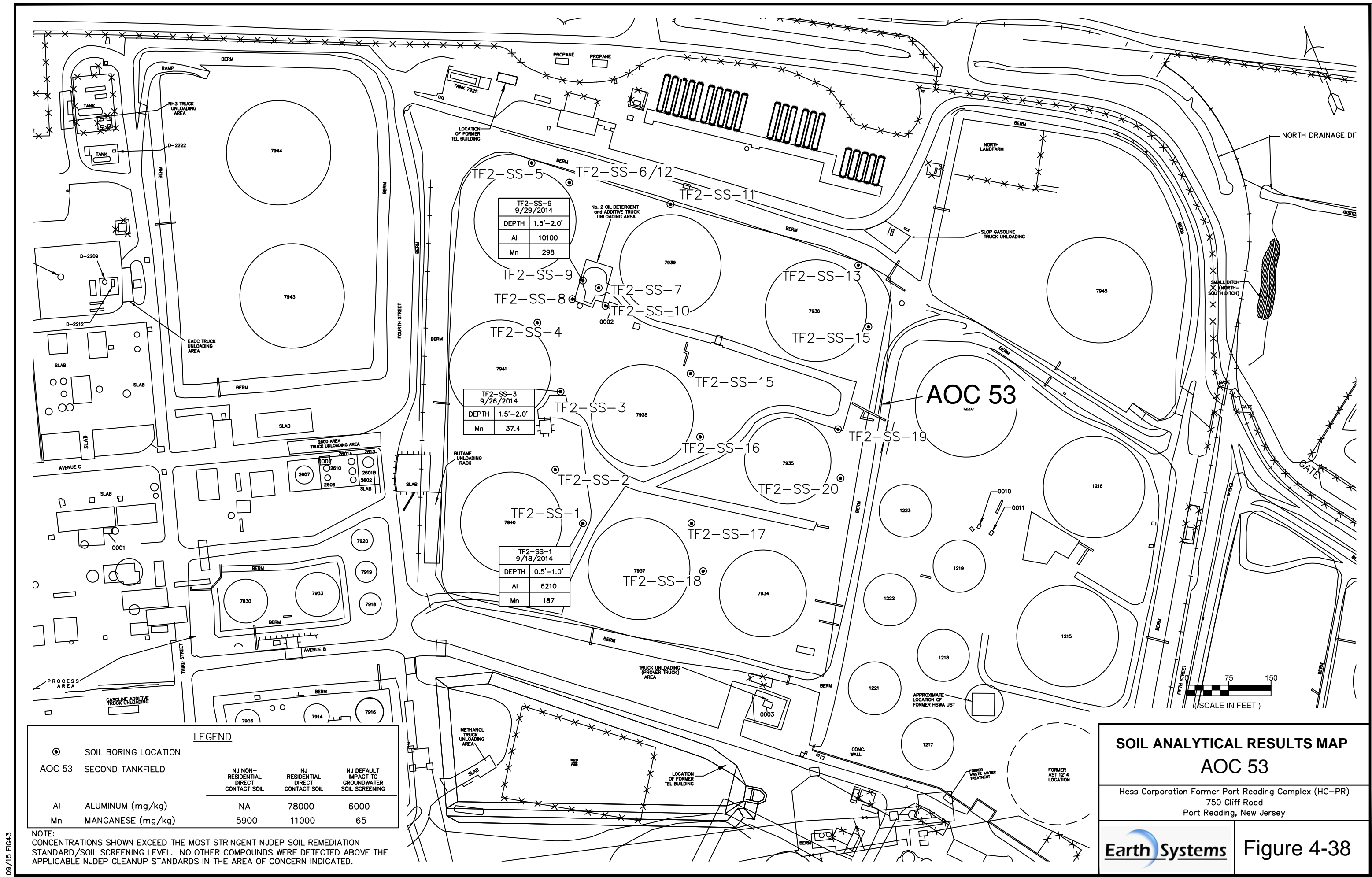
**SOIL ANALYTICAL RESULTS MAP**

**AOC 52**

Hess Corporation Former Port Reading Complex (HC-PR)  
750 Cliff Road  
Port Reading, New Jersey

**Earth Systems**

**Figure 4-37**

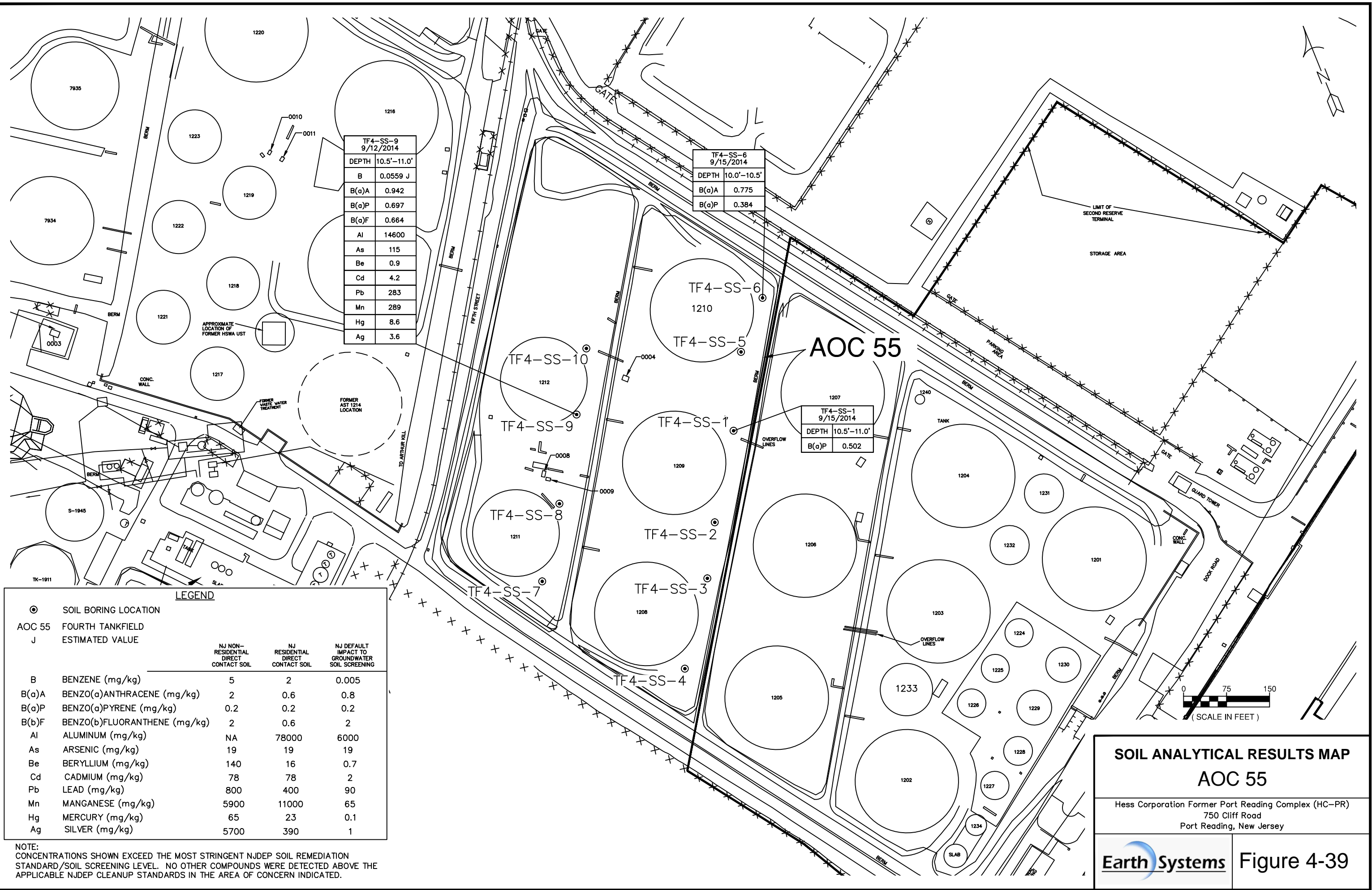


**SOIL ANALYTICAL RESULTS MAP**  
**AOC 53**

Hess Corporation Former Port Reading Complex (HC-PR)  
750 Cliff Road  
Port Reading, New Jersey



Figure 4-38



**SOIL ANALYTICAL RESULTS MAP**

**AOC 55**

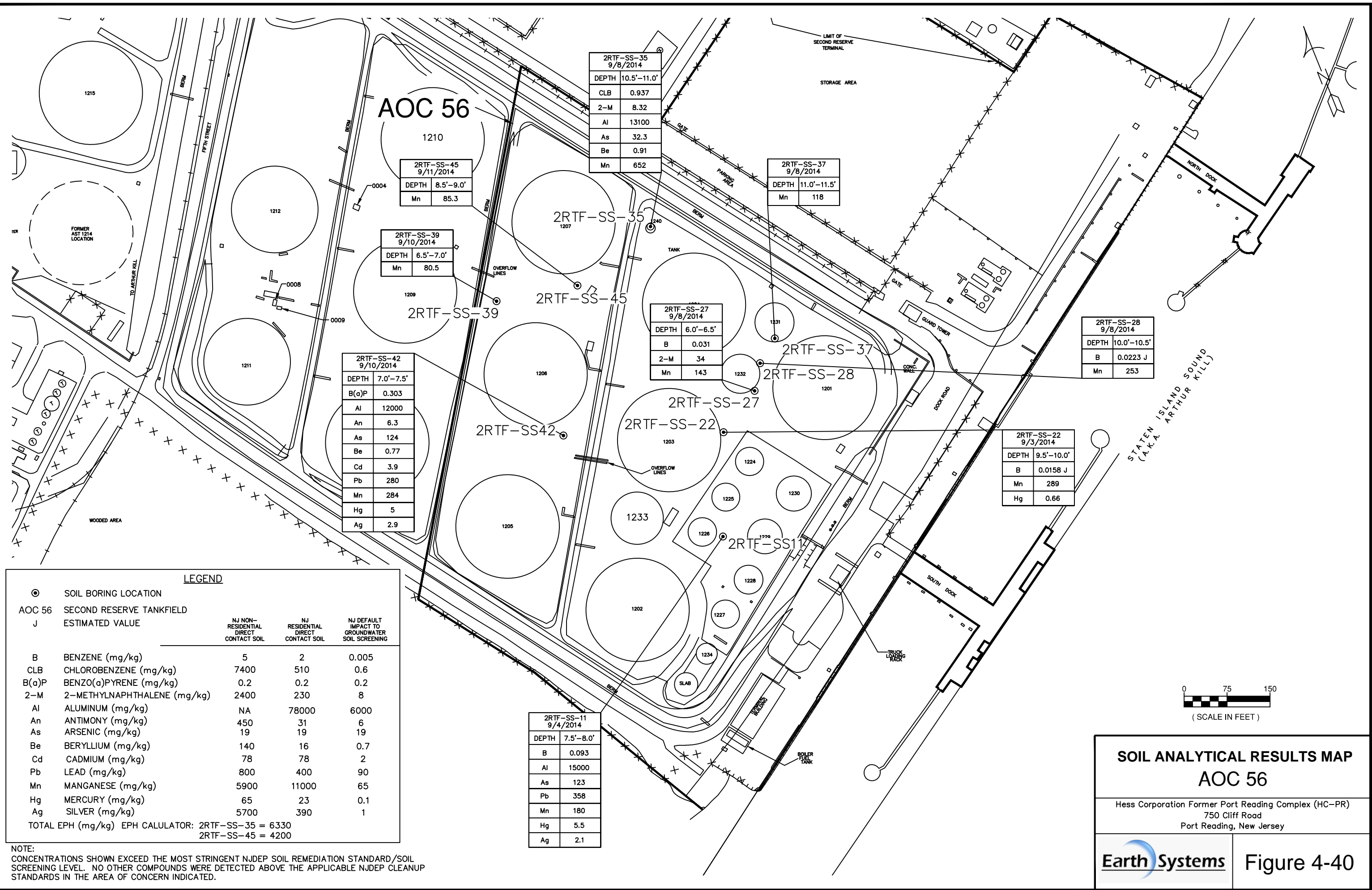
Hess Corporation Former Port Reading Complex (HC-PR)  
750 Cliff Road  
Port Reading, New Jersey

**Earth Systems** Figure 4-39



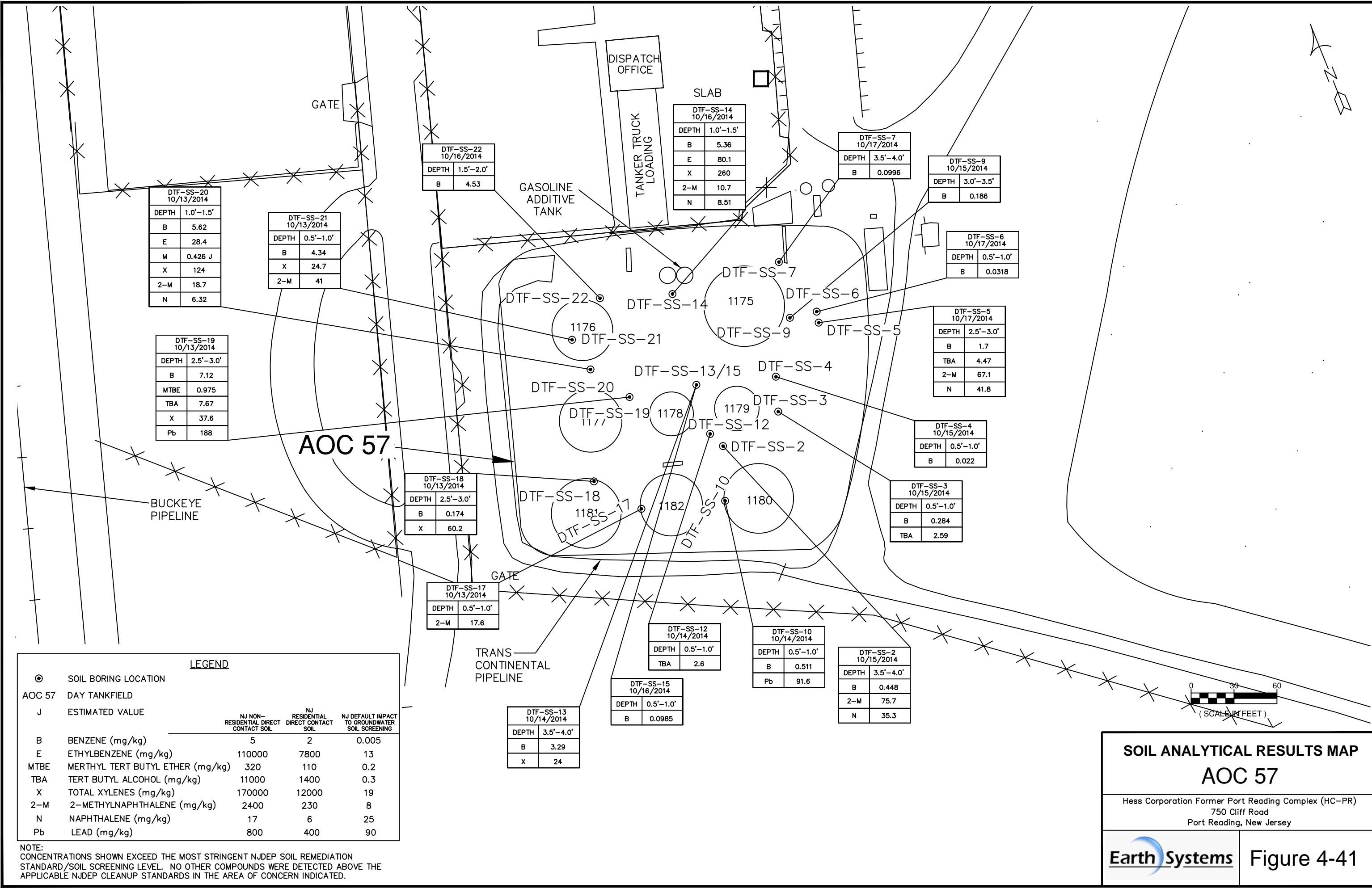
D:\Clients\Earth Systems\Hess\OLD FIGS\basemap1\_SOIL EXCEEDANCES.dwg, FIG45\_AOC 56, 10/21/2015 1:08:52 PM, Pinnacle

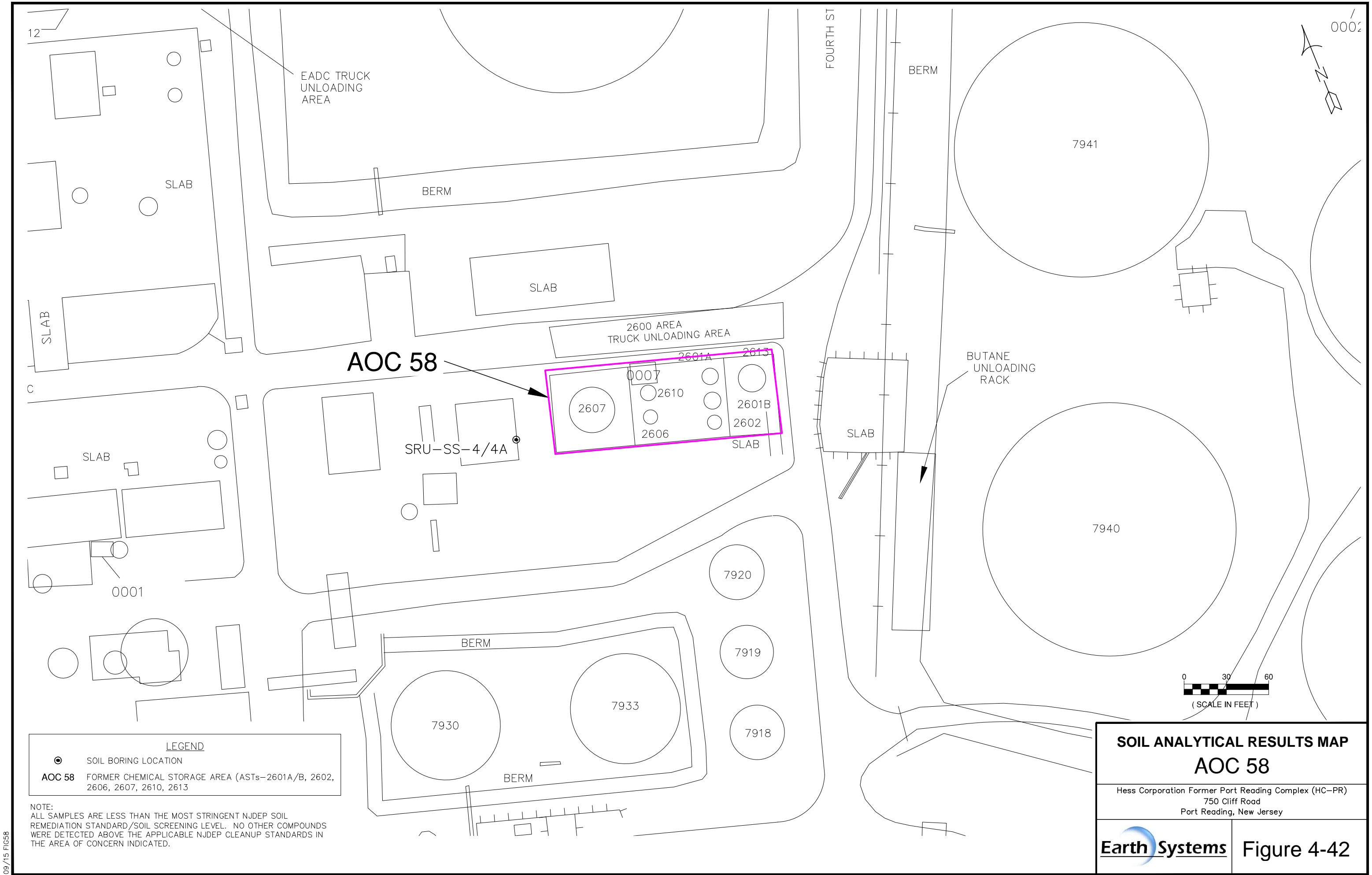
09/15 FIG45



D:\Clients\Earth Systems\Hess\OLD FIGS\basemap1\_SOIL EXCEEDANCES.dwg, FIG46\_AOC 57, 10/21/2015 1:09:12 PM, Pinnacle

09/15 FIG46

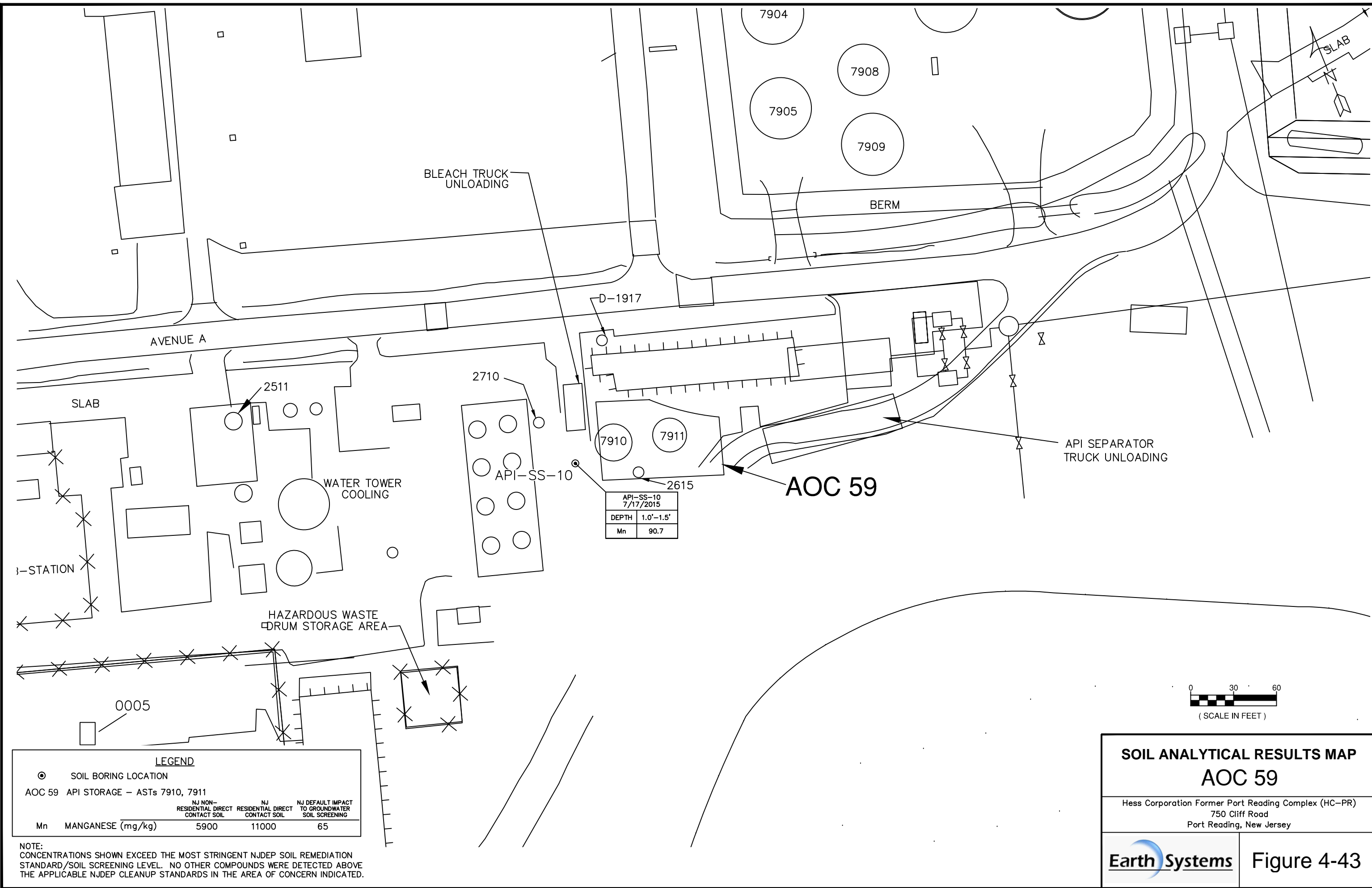






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09/15 FIG23

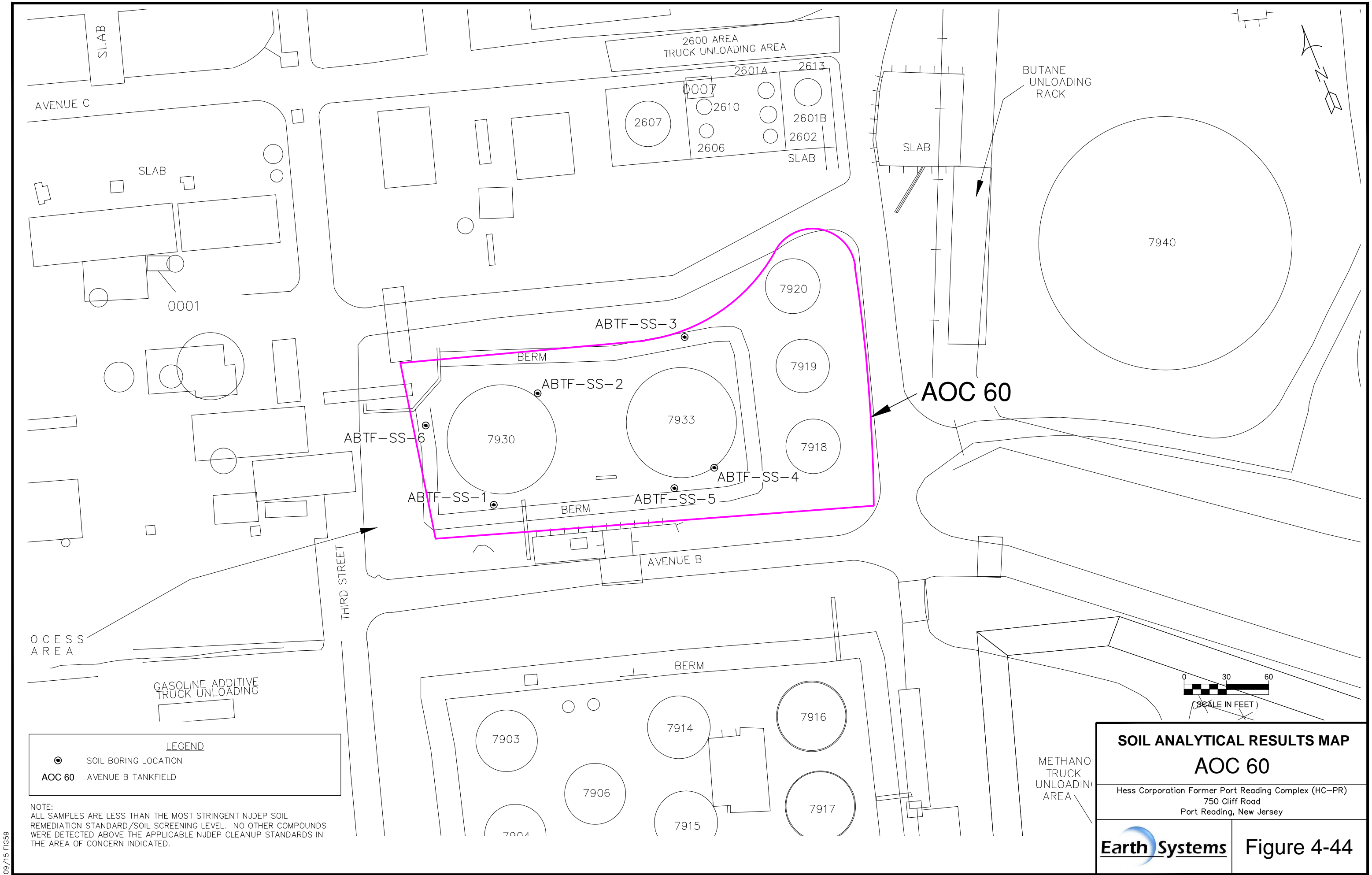


**SOIL ANALYTICAL RESULTS MAP**  
**AOC 59**

Hess Corporation Former Port Reading Complex (HC-PR)  
750 Cliff Road  
Port Reading, New Jersey

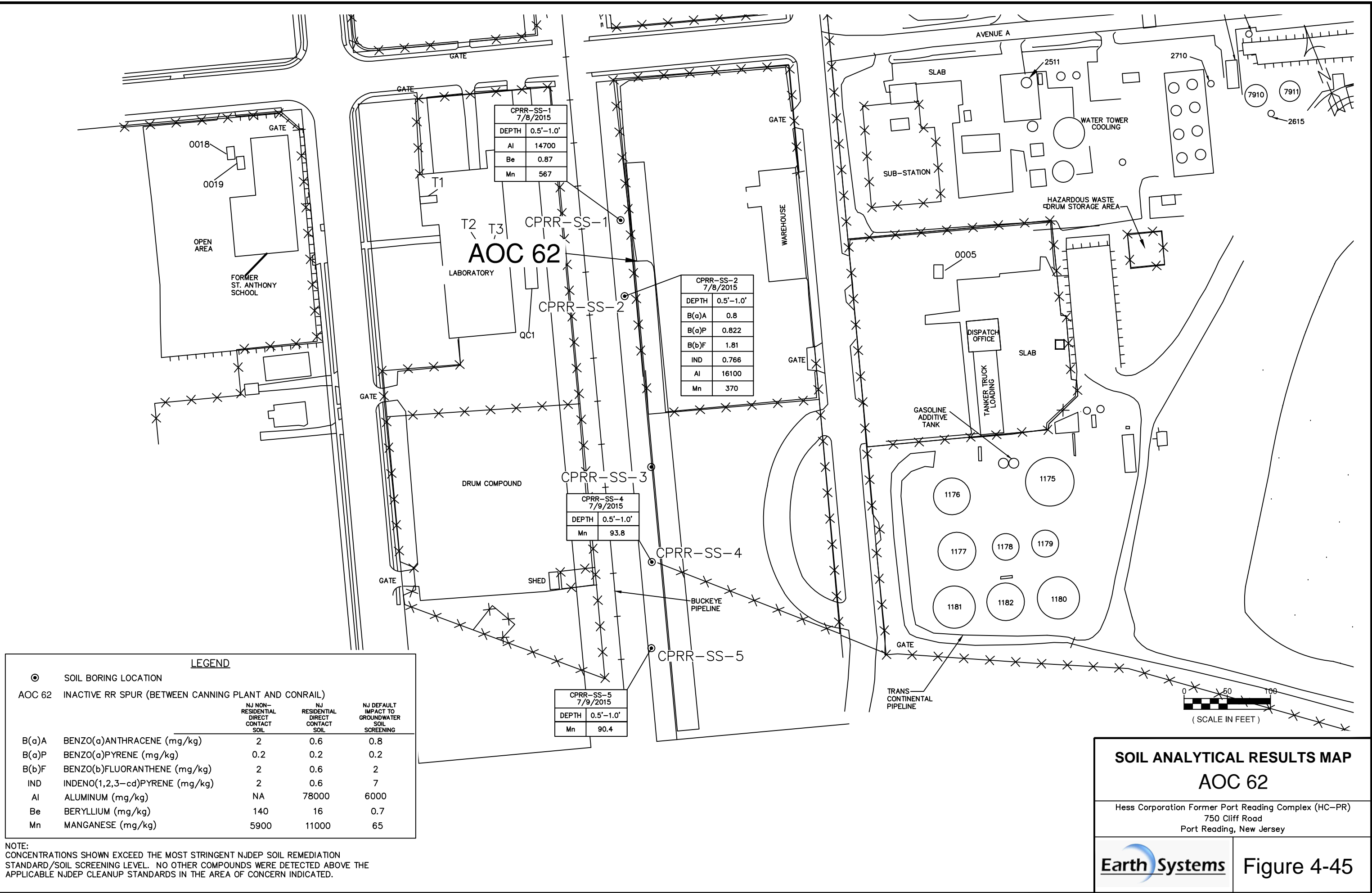
Earth Systems

**Figure 4-43**



D:\Clients\Earth Systems\Hess\OLD FIGS\basemap\_1\_SOIL EXCEEDANCES.dwg, FIG24\_AOC 62, 10/21/2015 1:00:40 PM, Pinnacle

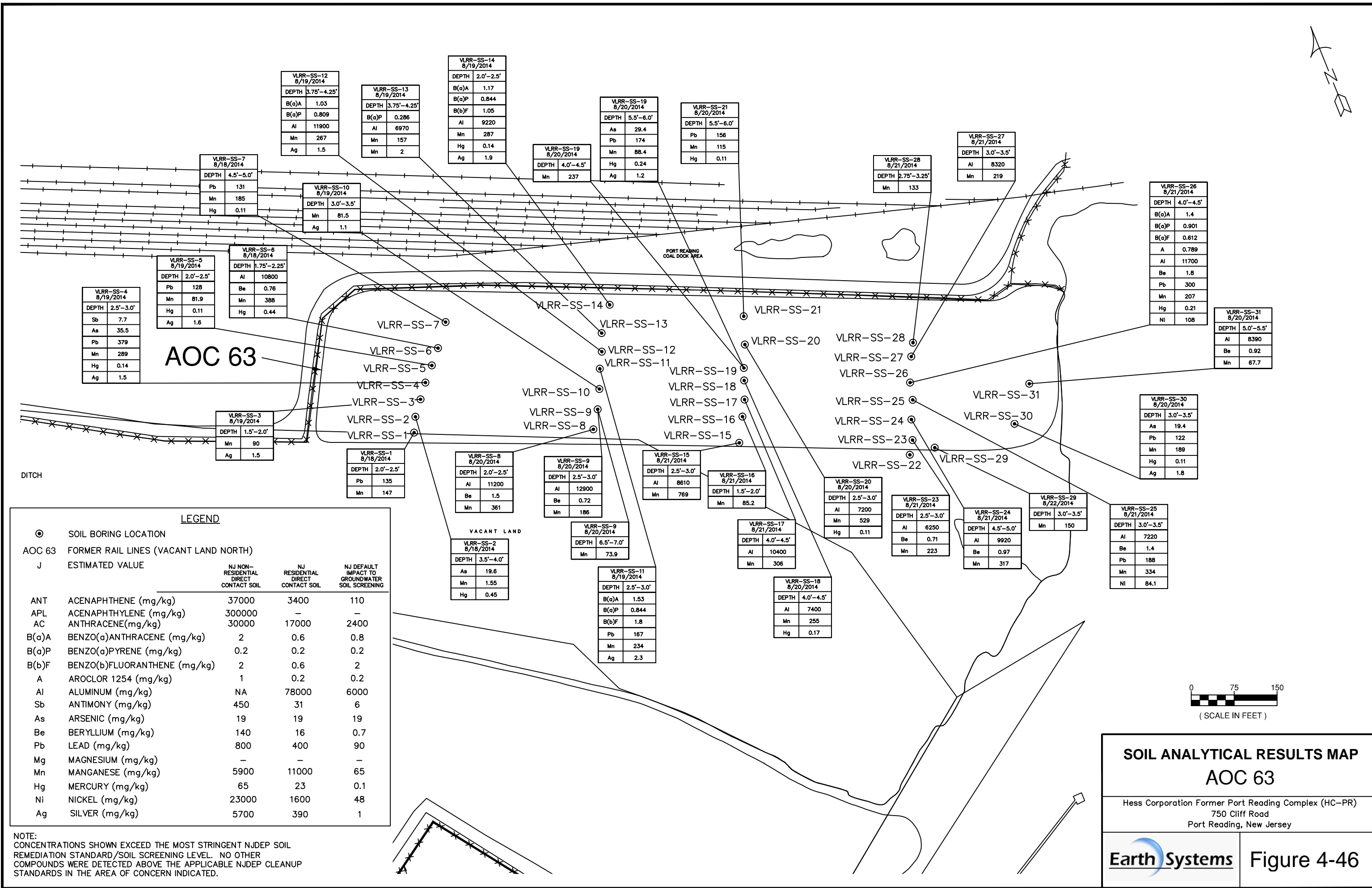
09/15 FIG24



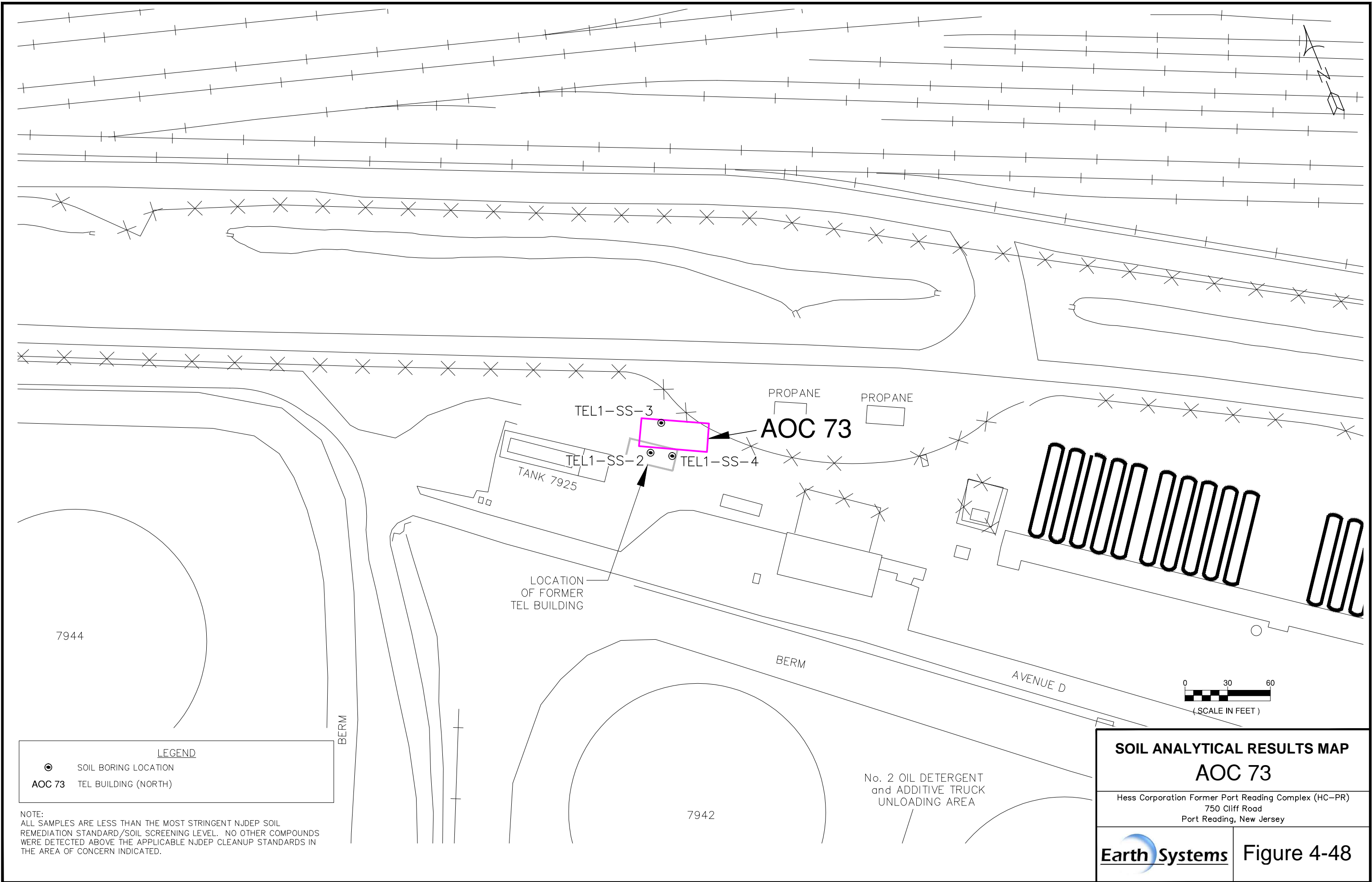



D:\Clients\Earth Systems\Hess\OLD FIGS\basemap1\_SOIL\_EXCEEDANCES.dwg, FIG47\_AOC 63, 10/21/2015 1:09:33 PM, Pinnacle

09/15 FIG47

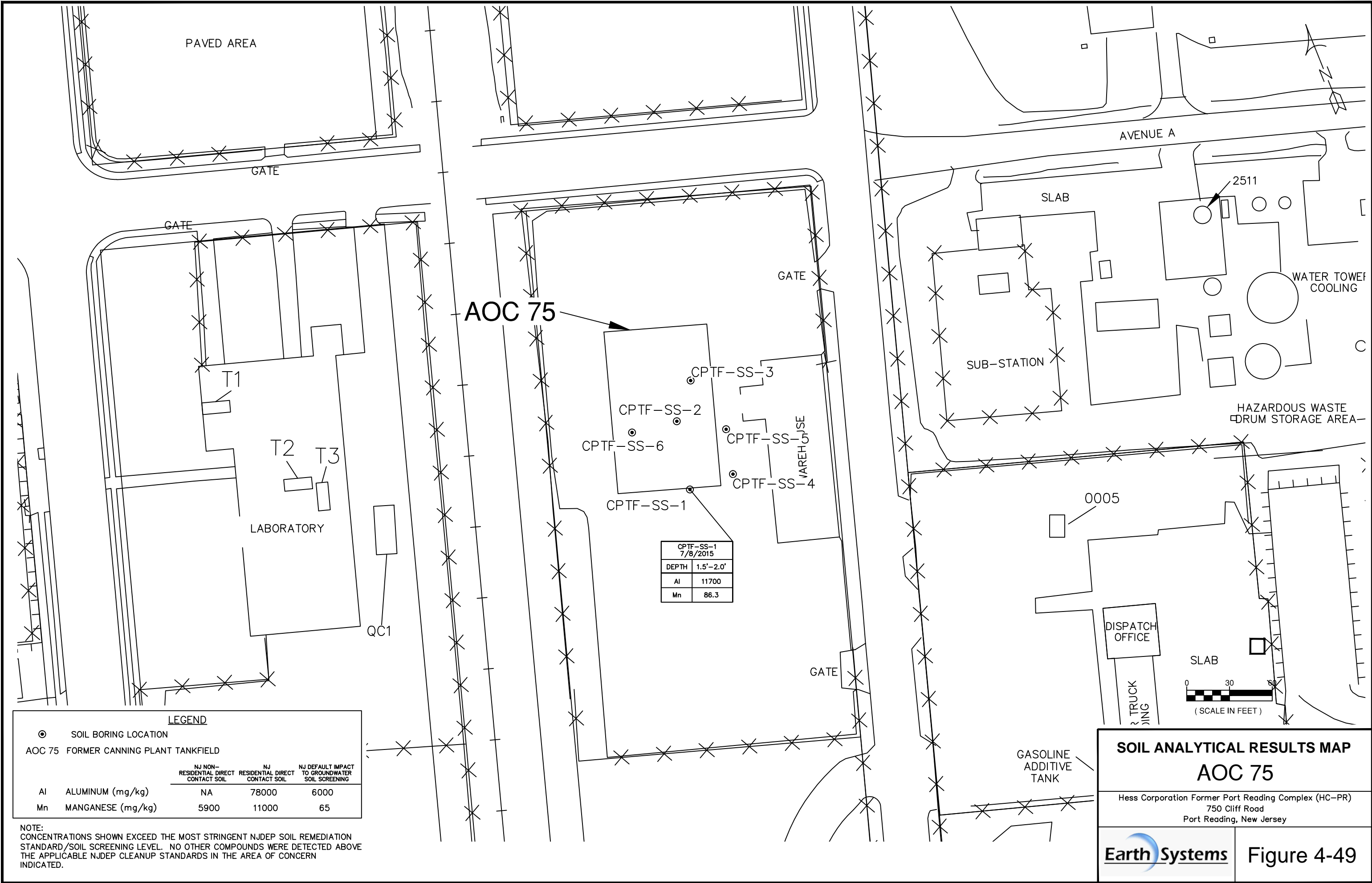


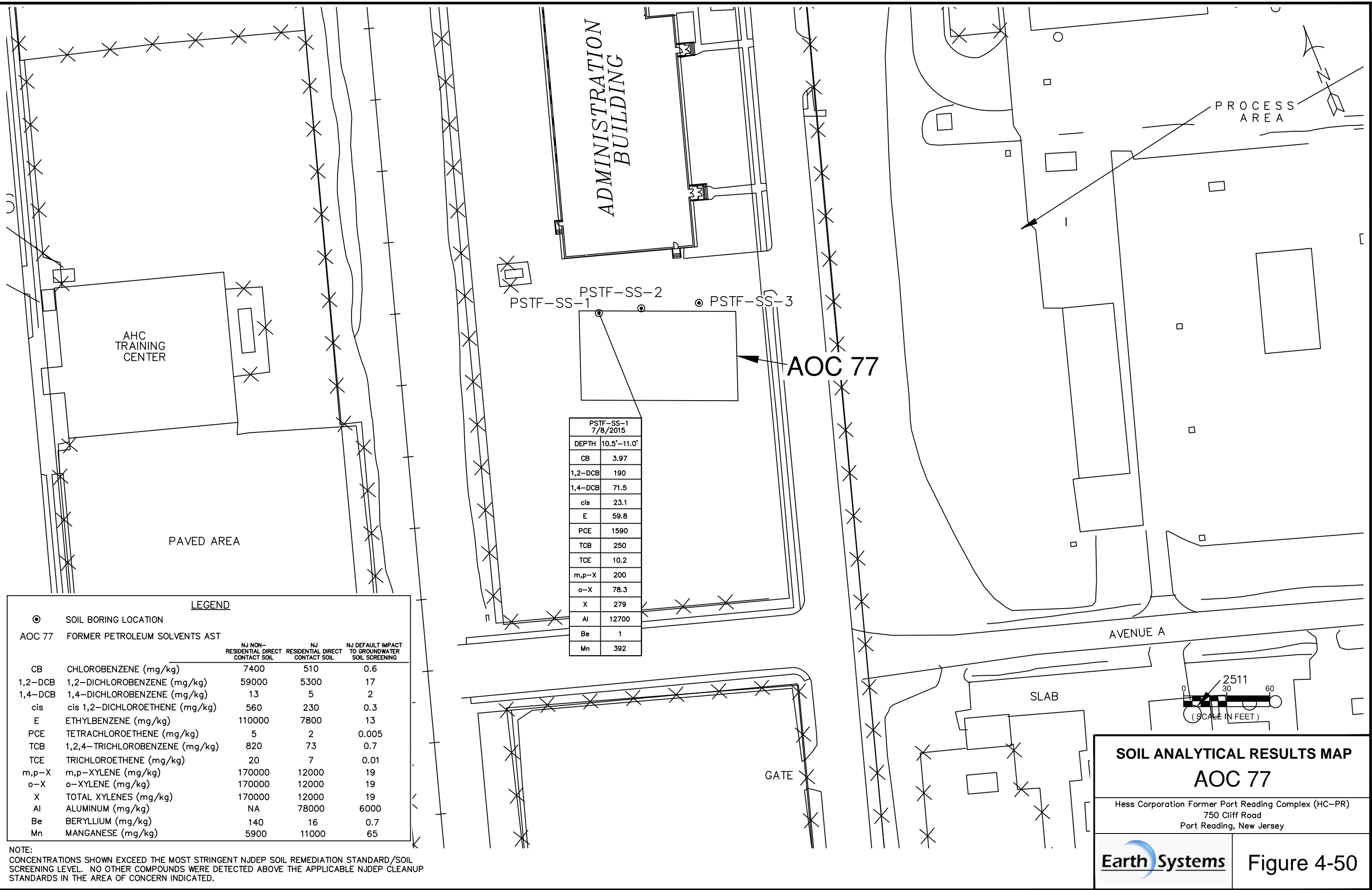


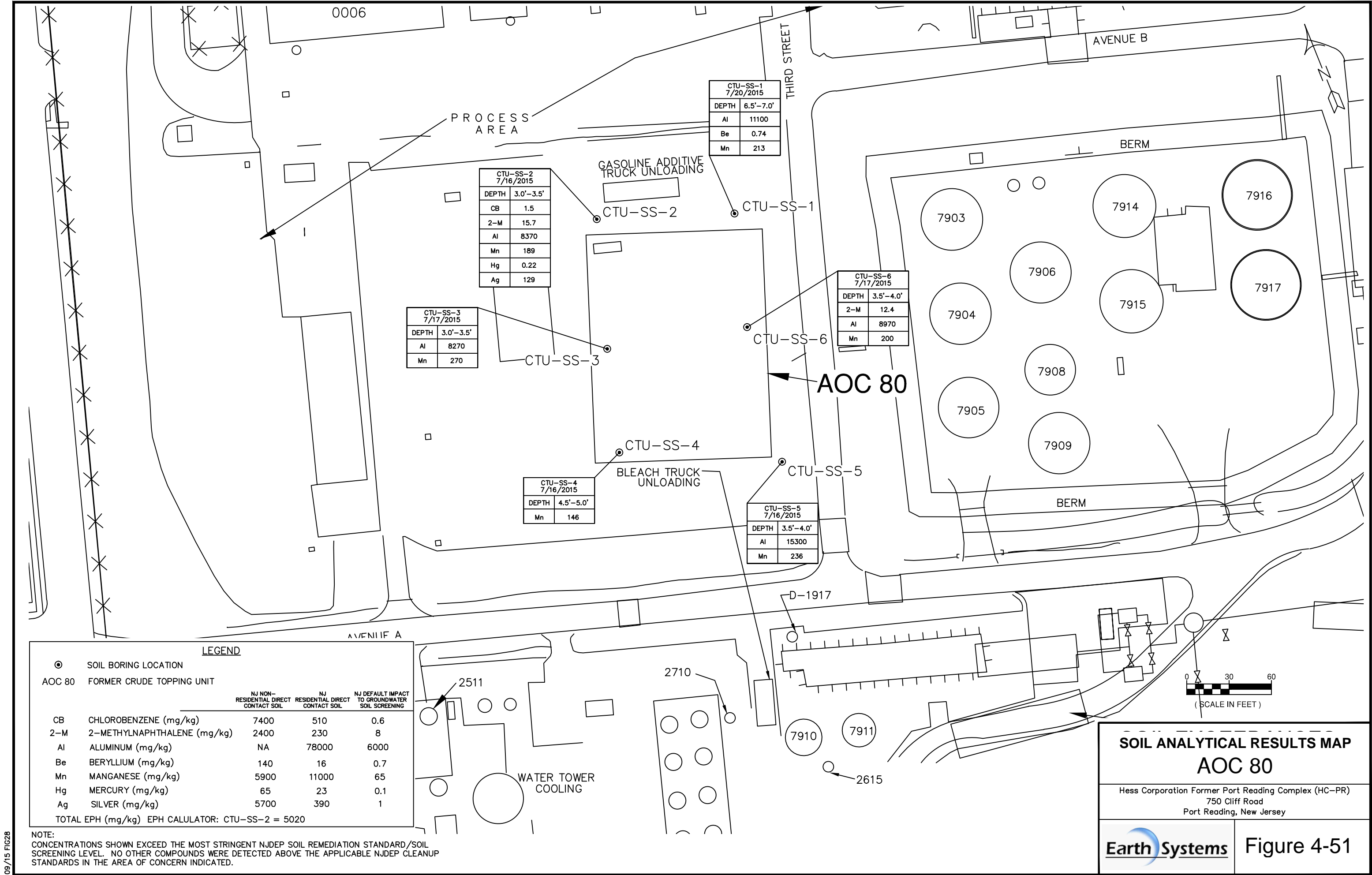


<b>SOIL ANALYTICAL RESULTS MAP</b>	
<b>AOC 73</b>	
Hess Corporation Former Port Reading Complex (HC-PR) 750 Cliff Road Port Reading, New Jersey	
	<b>Figure 4-48</b>





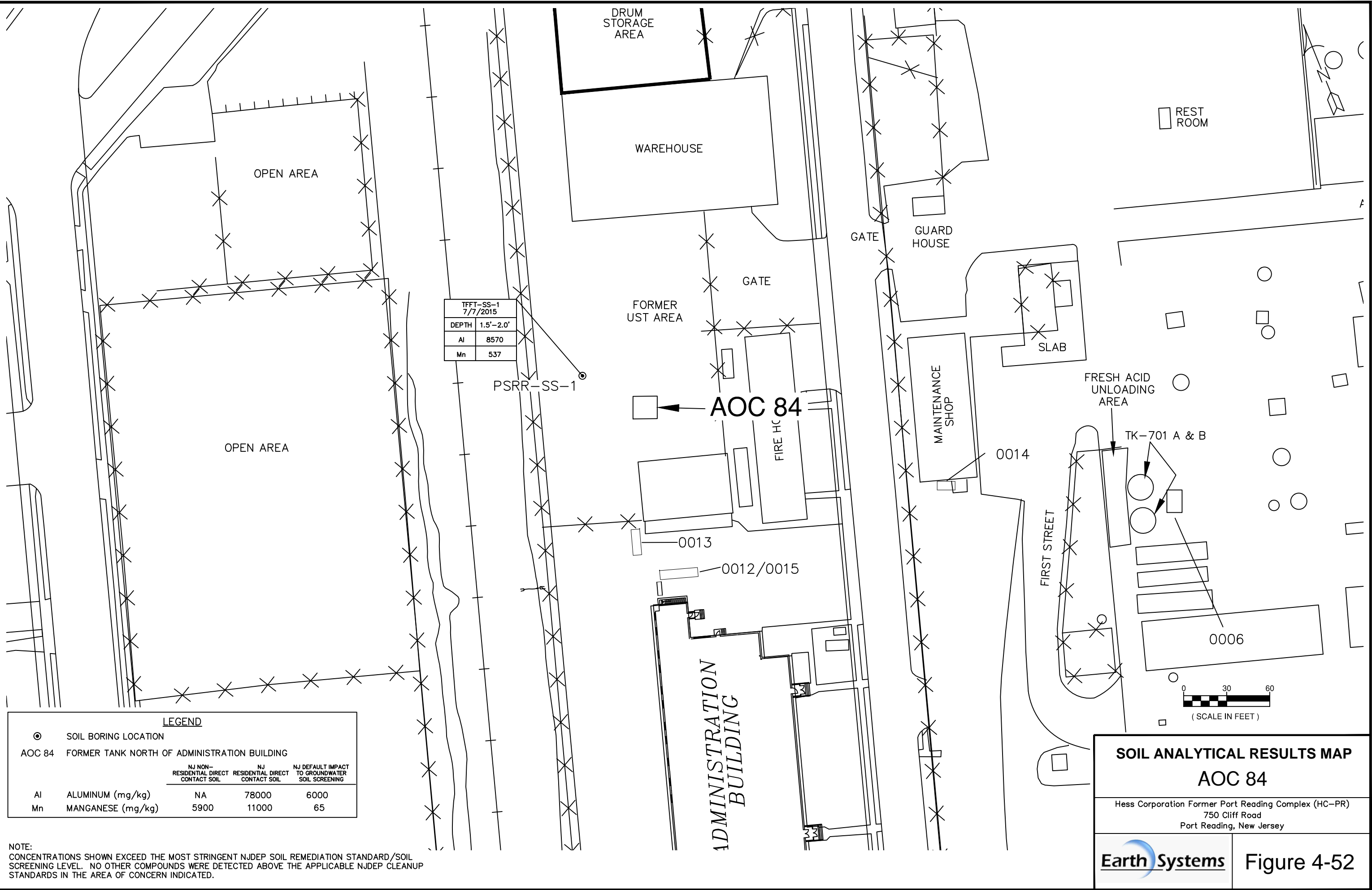


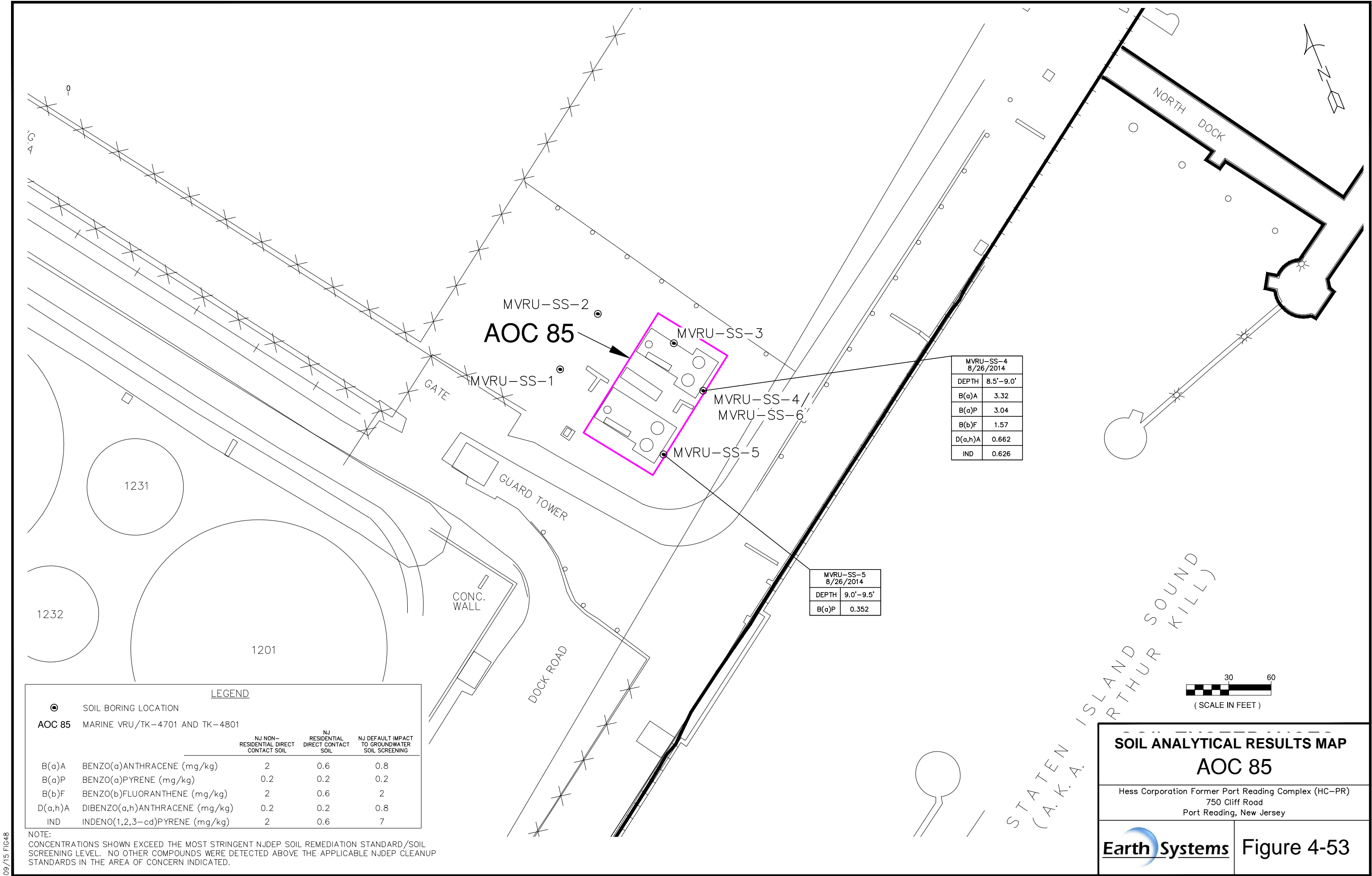




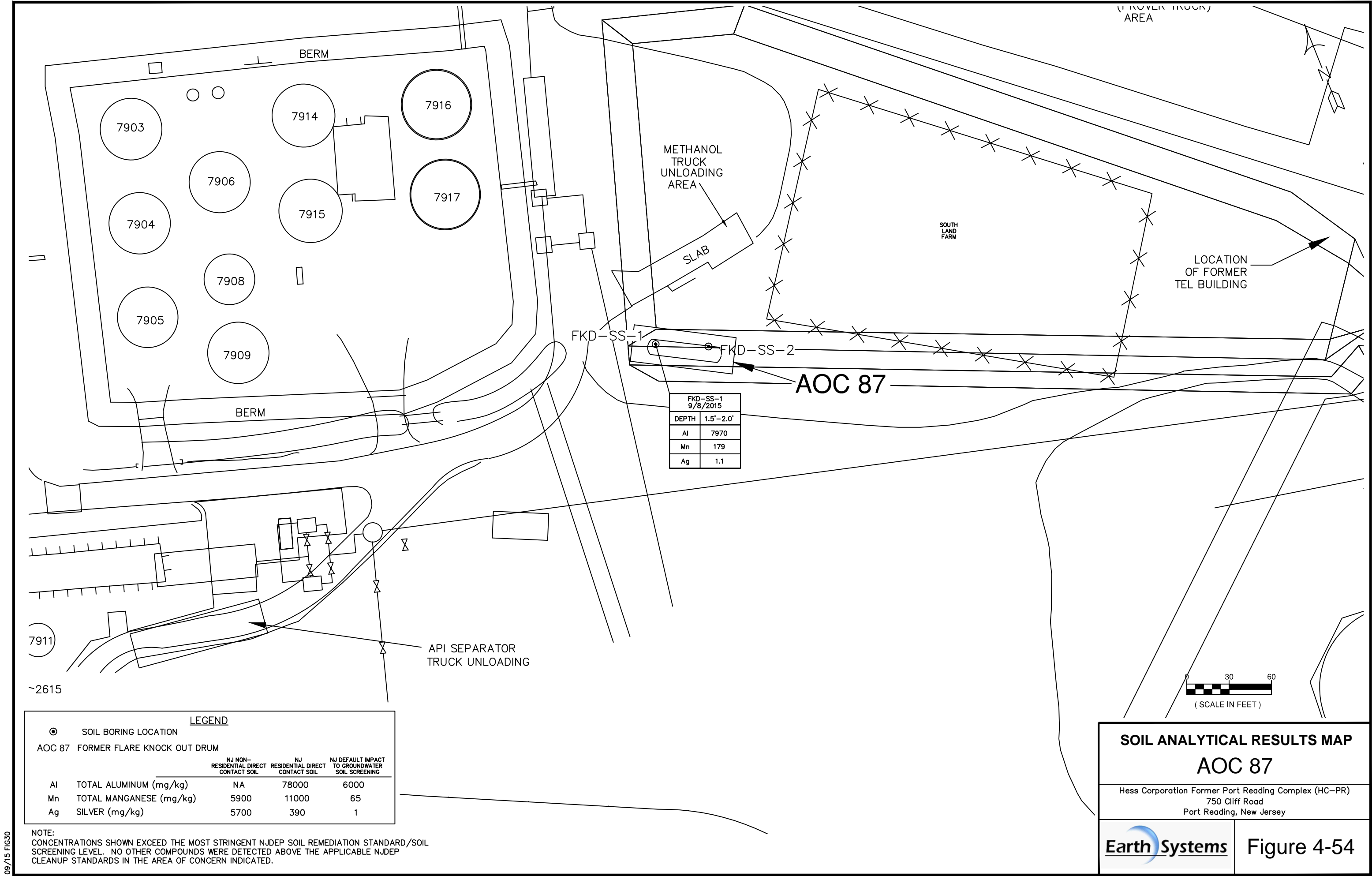
D:\Clients\Earth Systems\Hess\OLD FIGS\basemap1\_SOIL EXCEEDANCES.dwg, FIG29\_AOC 84, 10/21/2015 1:02:45 PM, Pinnacle

09/15 FIG29





D:\Clients\Earth Systems\Hess\OLD FIGS\basemap1\_SOIL EXCEEDANCES.dwg, FIG30\_AOC 87, 10/21/2015 1:03:00 PM, Pinnacle

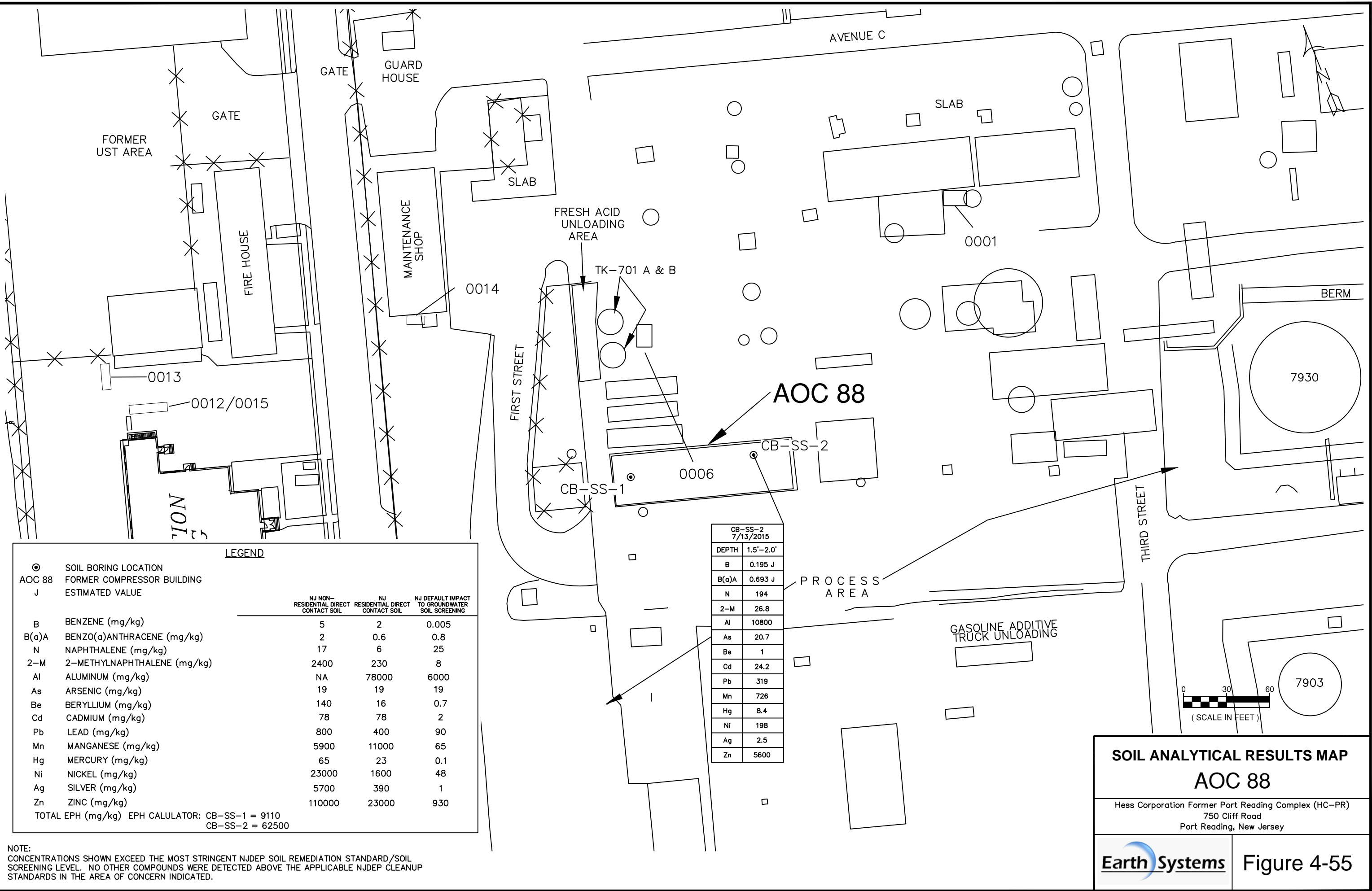


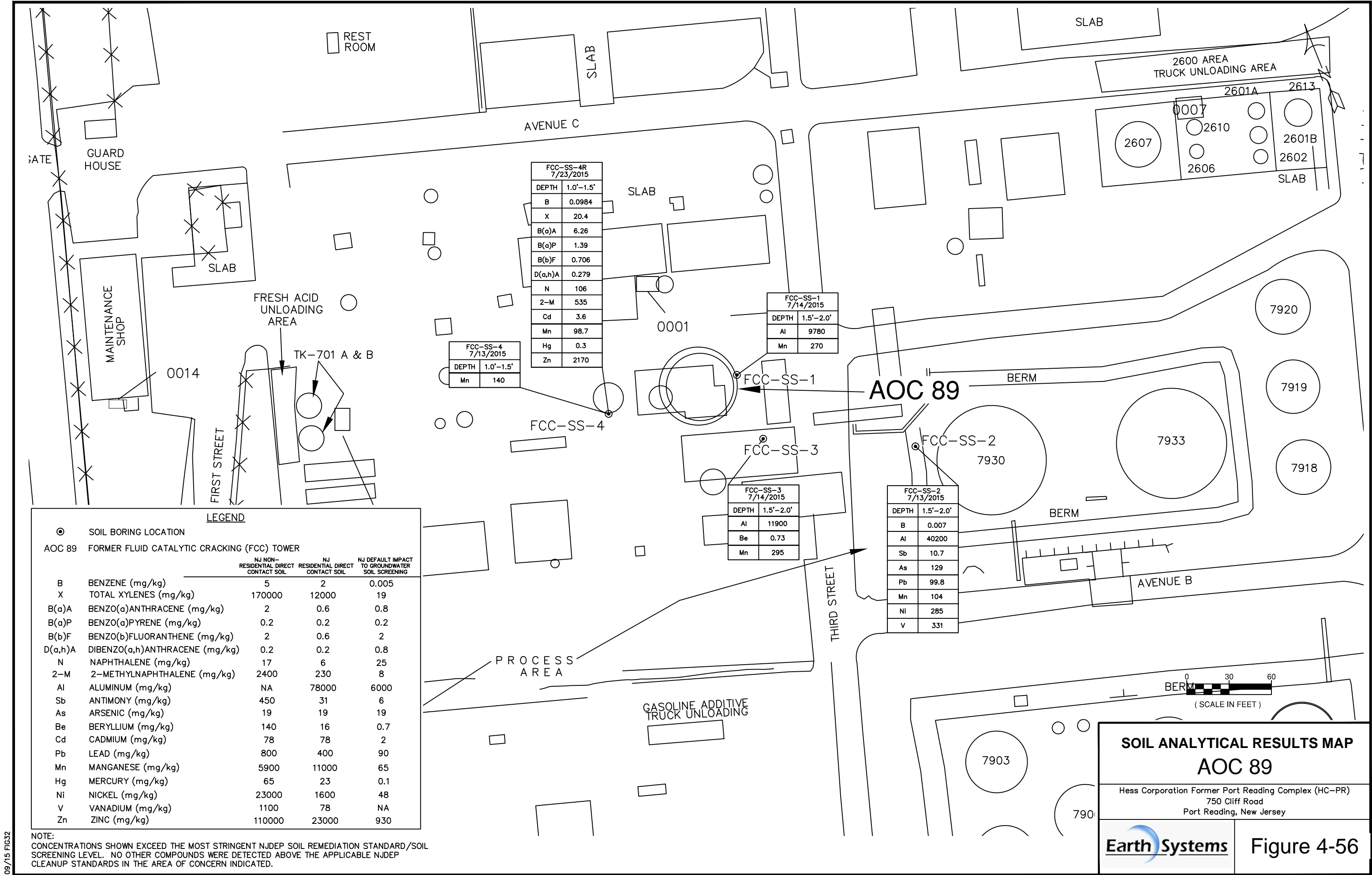
09/15 FIG30

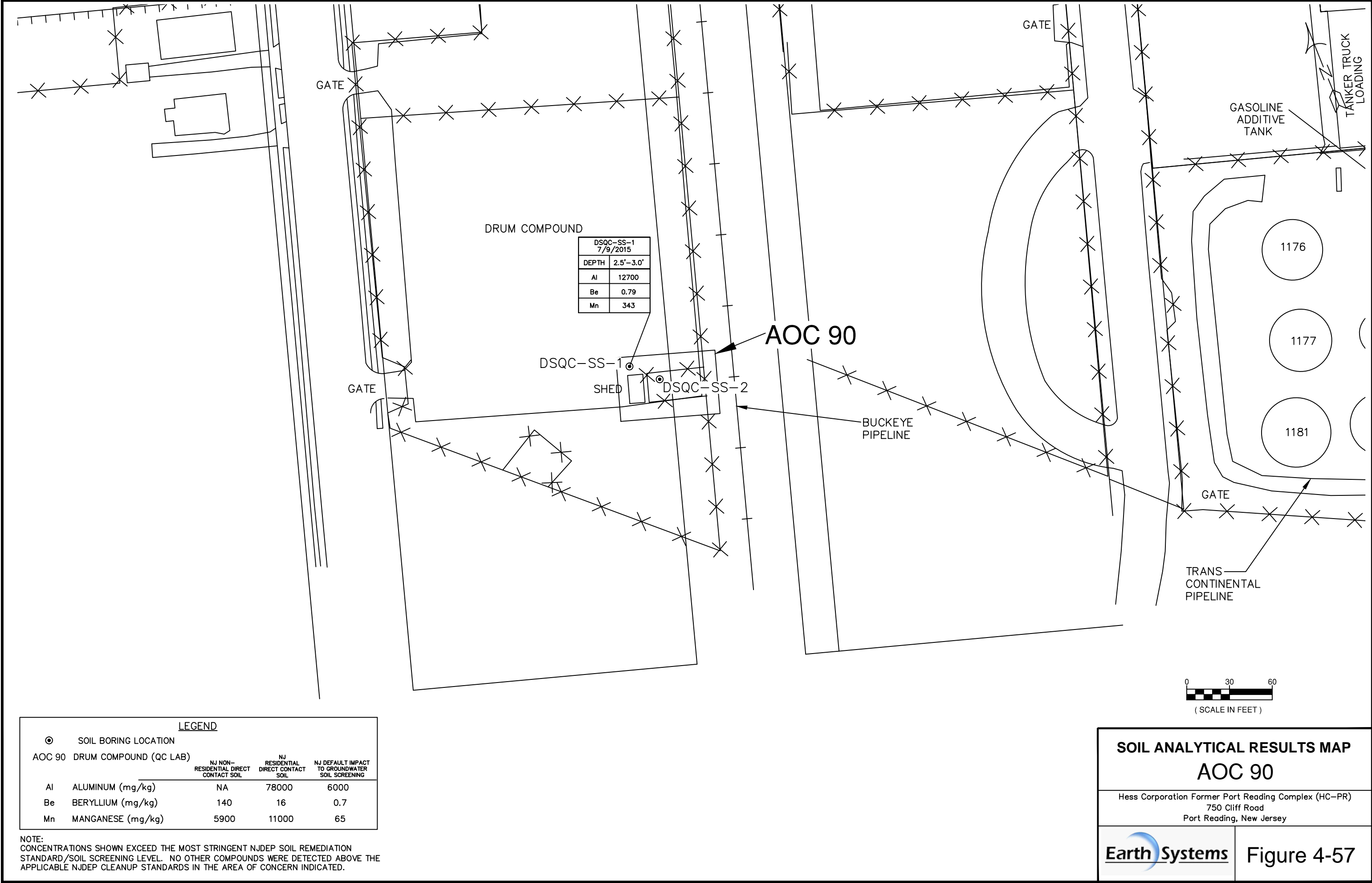


D:\Clients\Earth Systems\Hess\OLD FIGS\basemap1\_SOIL EXCEEDANCES.dwg, FIG31\_AOC 88, 10/21/2015 1:03:14 PM, Pinnacle

09/15 FIG31



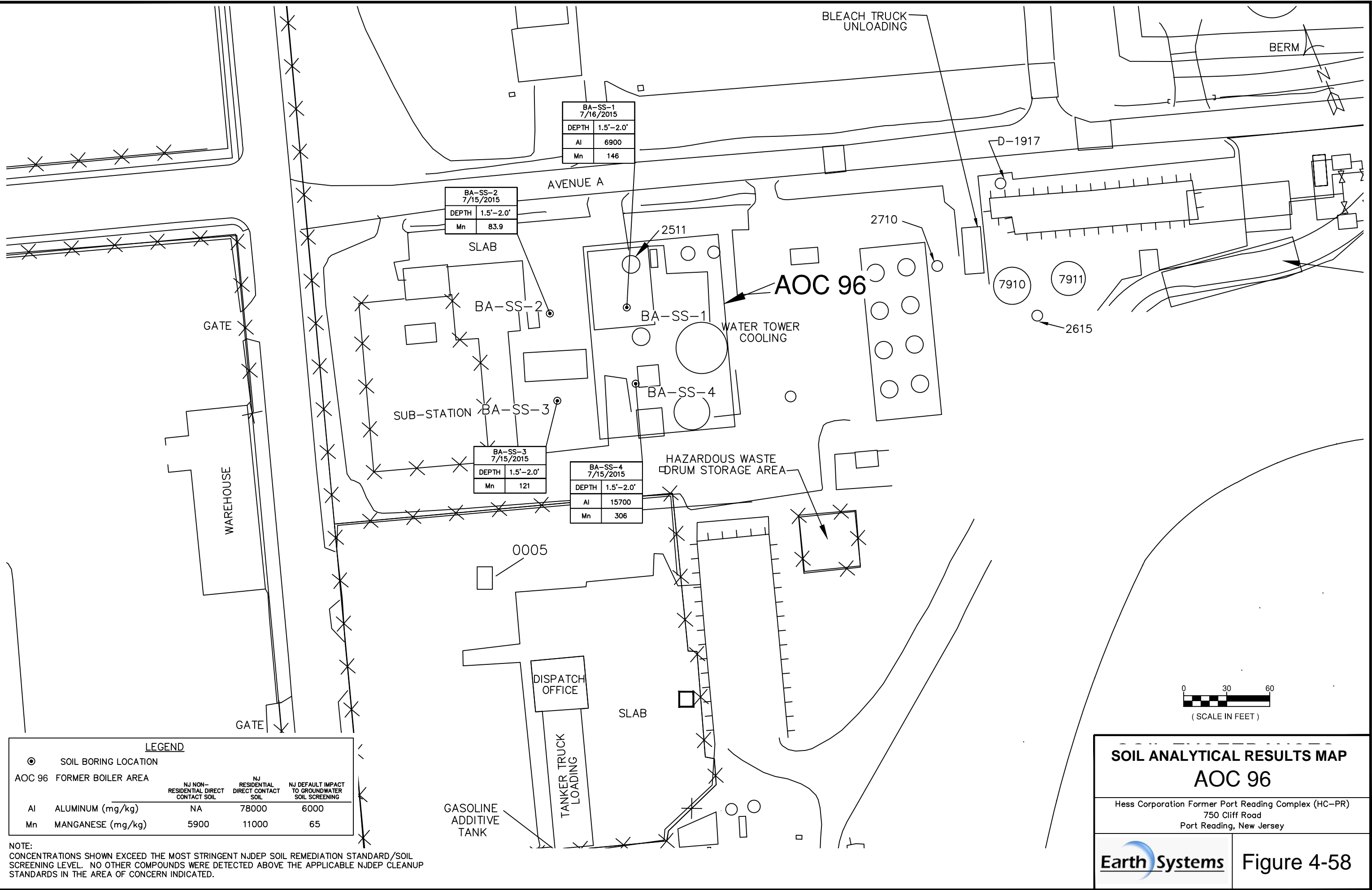






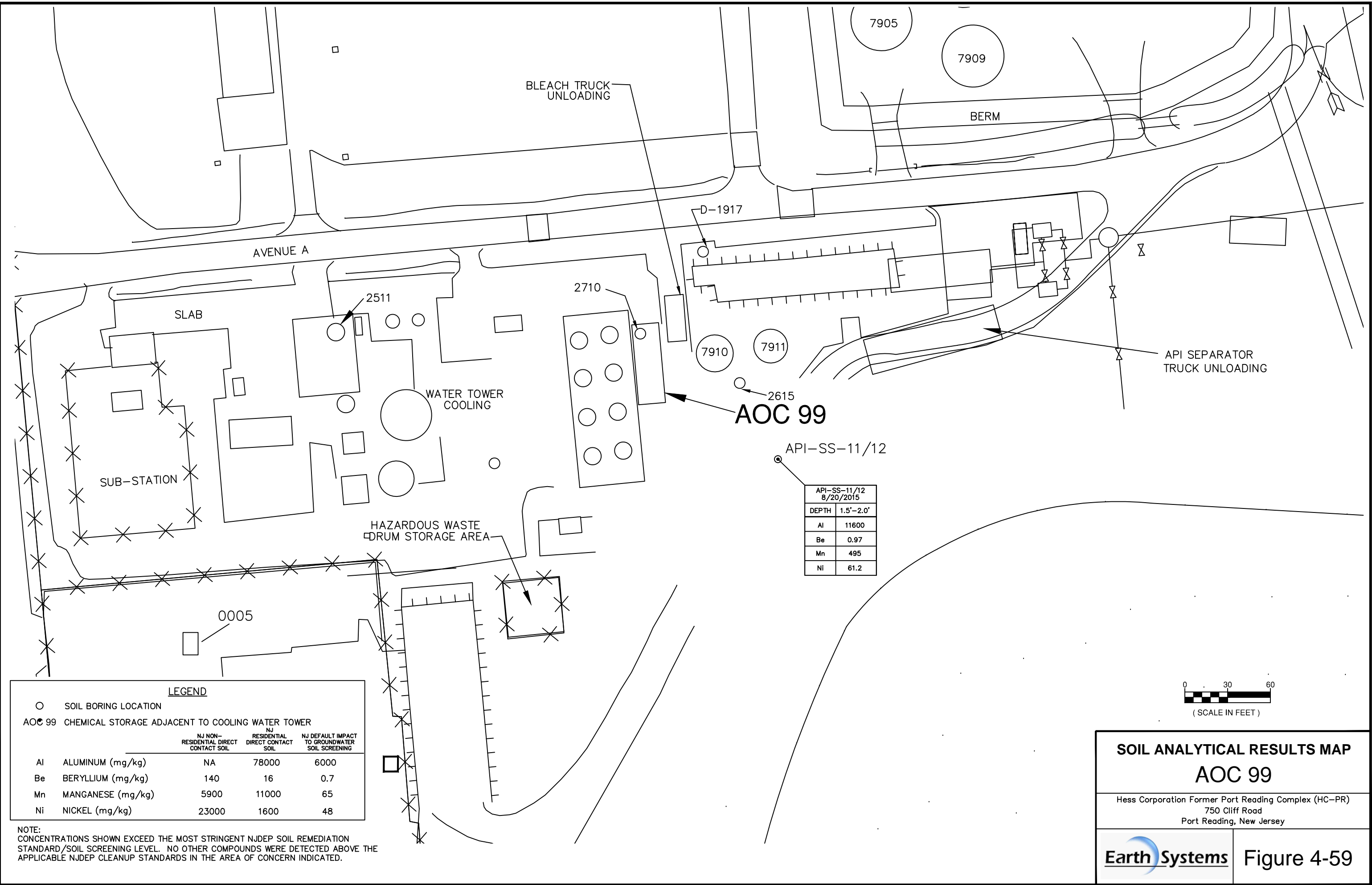
D:\Clients\Earth Systems\Hess\OLD FIGS\basemap\_1\_SOIL EXCEEDANCES.dwg, FIG34\_AOC 96, 10/21/2015 1:03:59 PM, Pinnacle

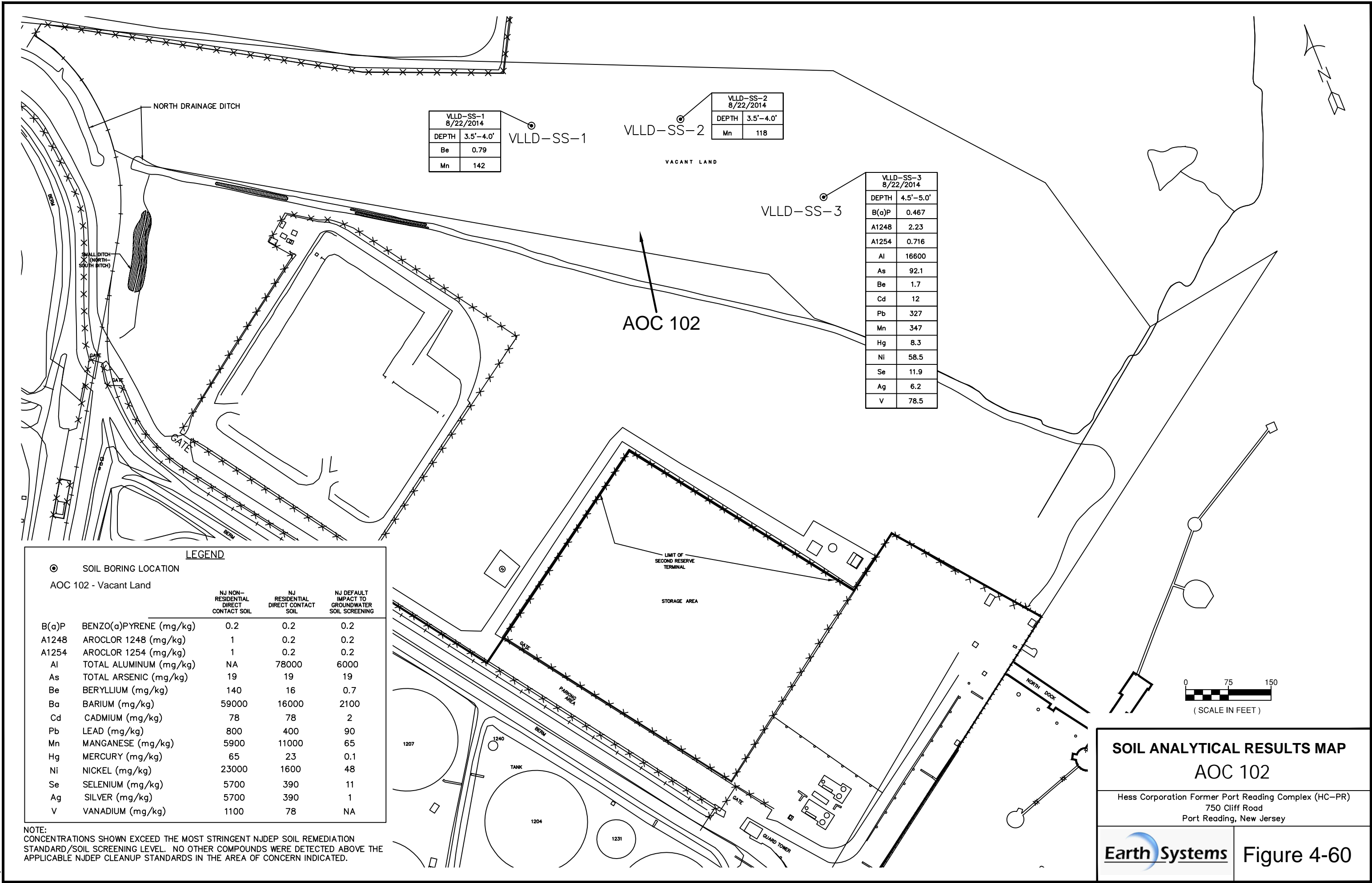
09/15 FIG34



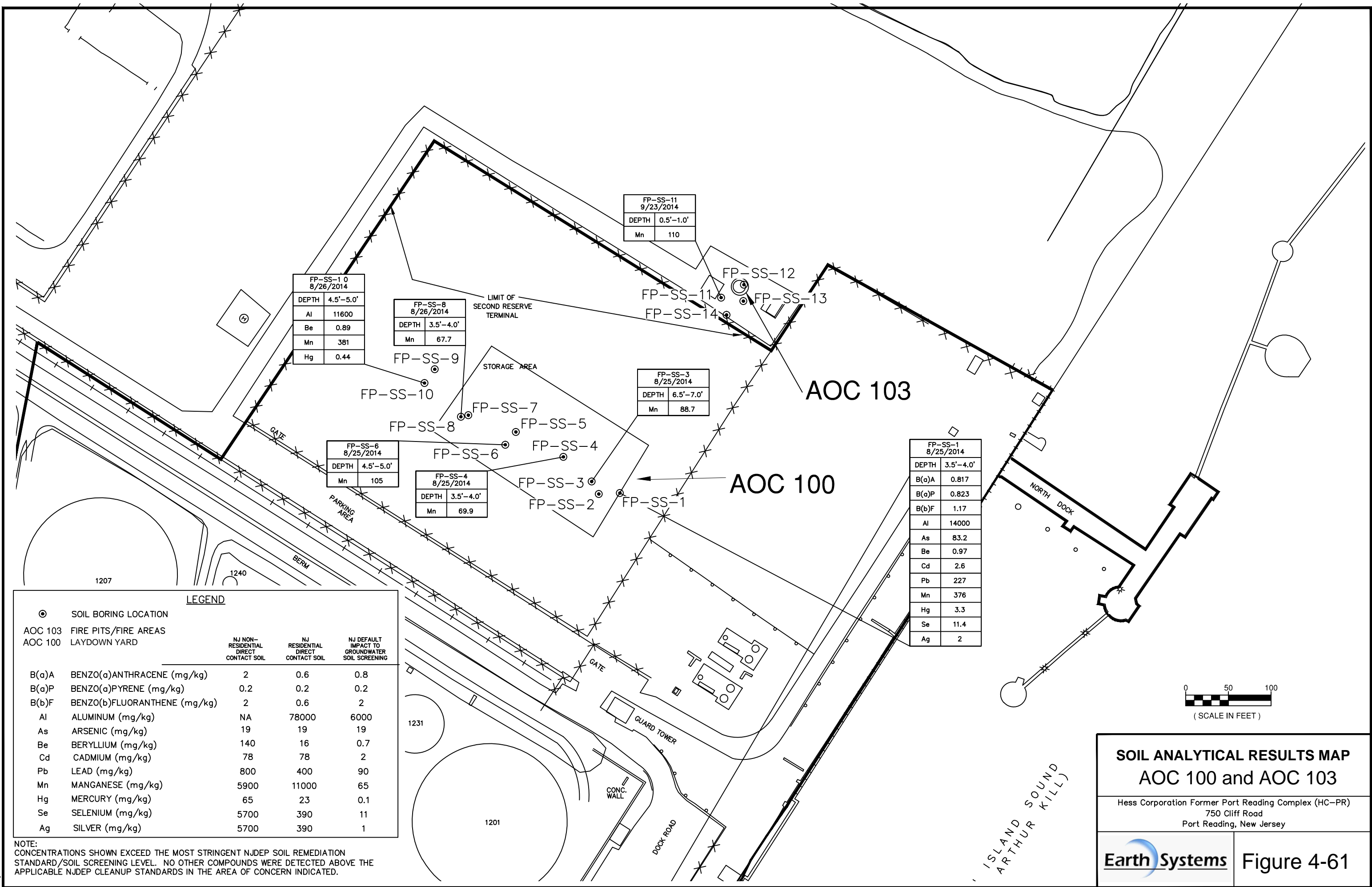
D:\Clients\Earth Systems\Hess\OLD FIGS\basemap1\_SOIL EXCEEDANCES.dwg, FIG35\_AOC 99, 10/21/2015 1:04:15 PM, Pinnacle

09/15 FIG35



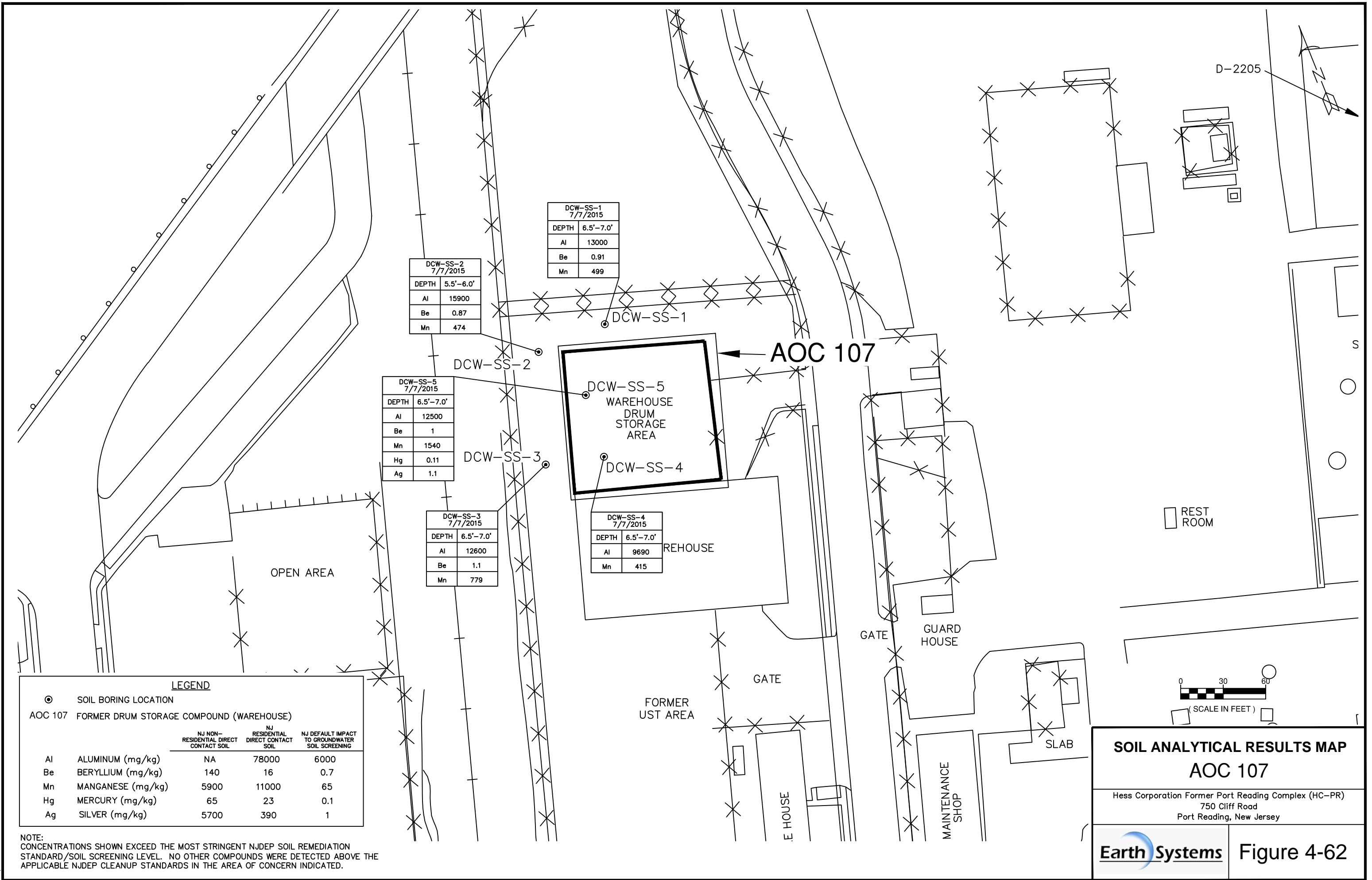


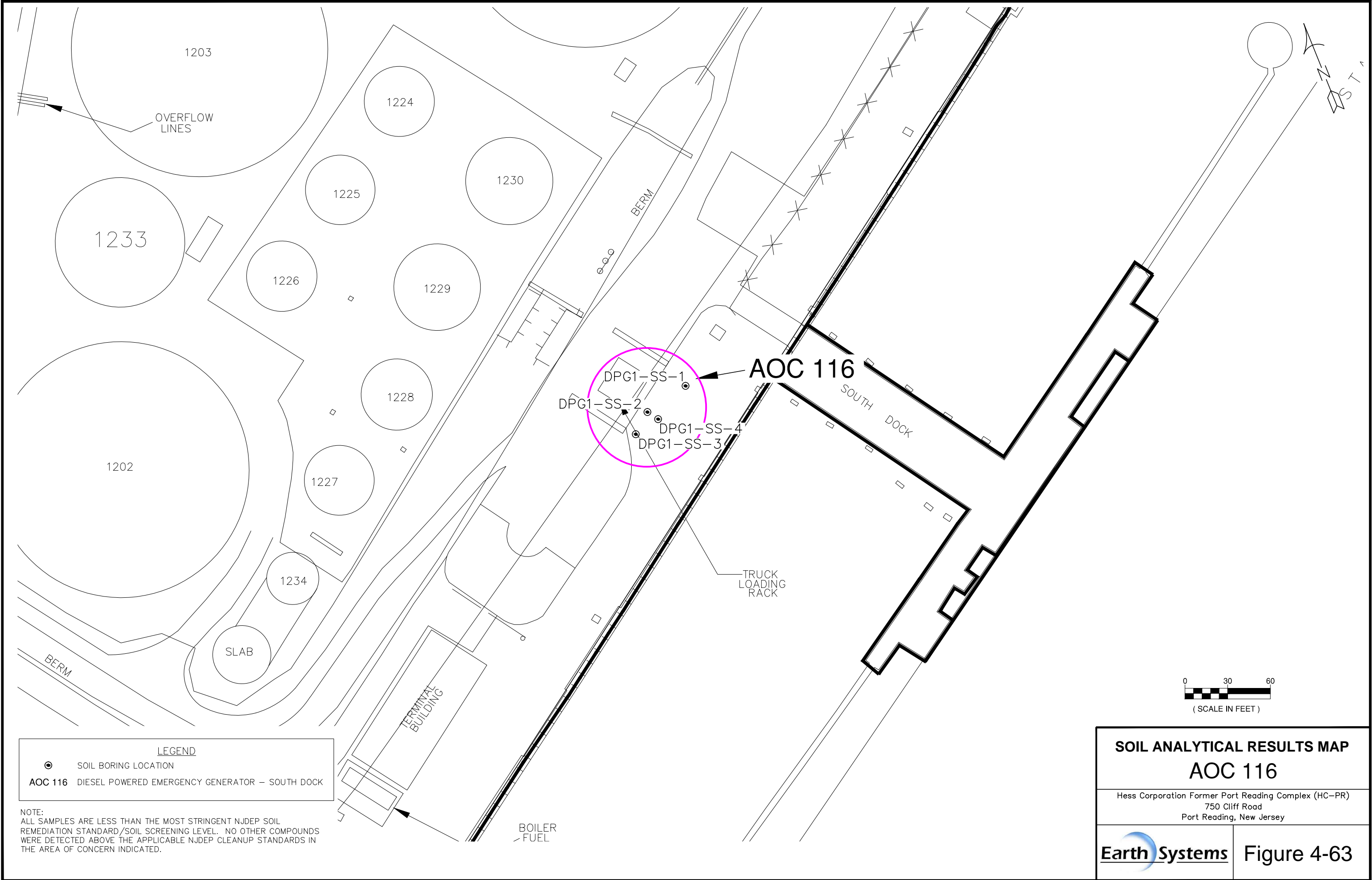




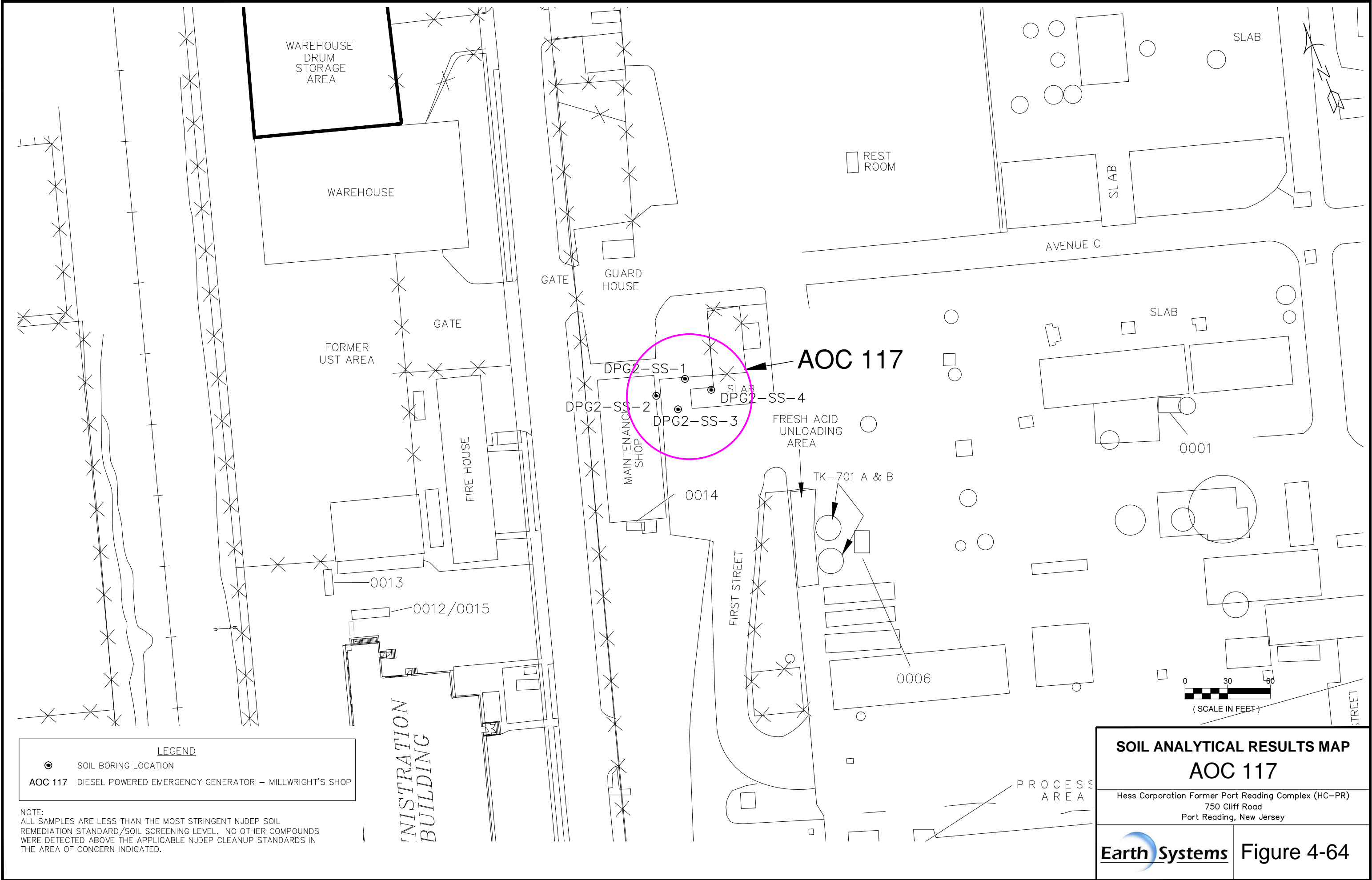
D:\Clients\Earth Systems\Hess\OLD FIGS\basemap1\_SOIL EXCEEDANCES.dwg, FIG37\_AOC 107, 10/21/2015 1:05:53 PM, Pinnacle

09/15 FIG37



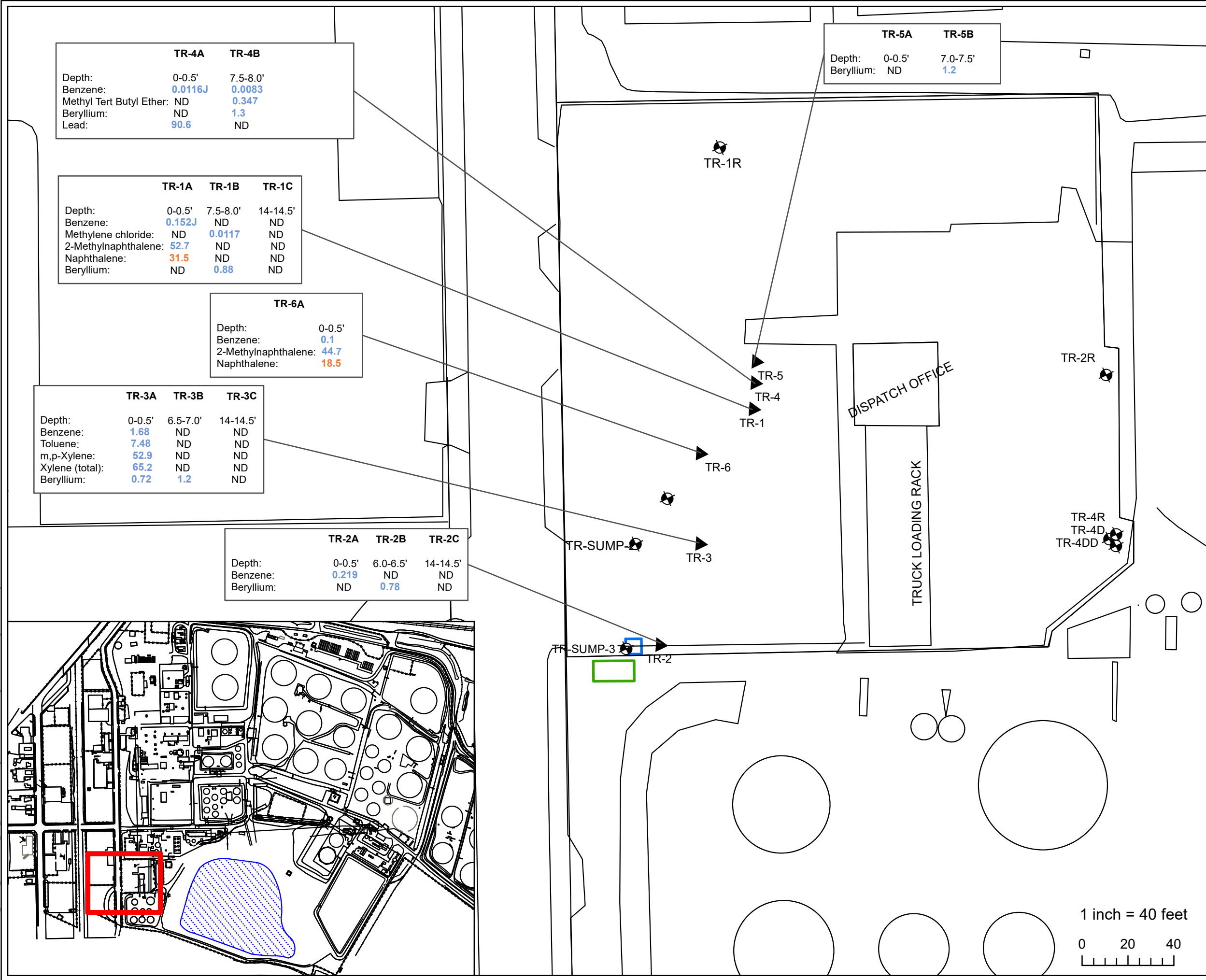






<b>SOIL ANALYTICAL RESULTS MAP</b> <b>AOC 117</b>	
Hess Corporation Former Port Reading Complex (HC-PR) 750 Cliff Road Port Reading, New Jersey	
<b>Earth Systems</b>	<b>Figure 4-64</b>

Document Path: P:\AESI\ACTIVE PROJECTS\GIS thru I\Hess\Port Reading Hess\GIS\Truck Loading Rack\Port Reading - Truck Loading Rack2018 Soil Results.mxd



	TR-4A	TR-4B
Depth:	0-0.5'	7.5-8.0'
Benzene:	0.0116J	0.0083
Methyl Tert Butyl Ether:	ND	0.347
Beryllium:	ND	1.3
Lead:	90.6	ND

	TR-1A	TR-1B	TR-1C
Depth:	0-0.5'	7.5-8.0'	14-14.5'
Benzene:	0.152J	ND	ND
Methylene chloride:	ND	0.0117	ND
2-Methylnaphthalene:	52.7	ND	ND
Naphthalene:	31.5	ND	ND
Beryllium:	ND	0.88	ND

TR-6A	
Depth:	0-0.5'
Benzene:	0.1
2-Methylnaphthalene:	44.7
Naphthalene:	18.5

	TR-3A	TR-3B	TR-3C
Depth:	0-0.5'	6.5-7.0'	14-14.5'
Benzene:	1.68	ND	ND
Toluene:	7.48	ND	ND
m,p-Xylene:	52.9	ND	ND
Xylene (total):	65.2	ND	ND
Beryllium:	0.72	1.2	ND

	TR-2A	TR-2B	TR-2C
Depth:	0-0.5'	6.0-6.5'	14-14.5'
Benzene:	0.219	ND	ND
Beryllium:	ND	0.78	ND

	TR-5A	TR-5B
Depth:	0-0.5'	7.0-7.5'
Beryllium:	ND	1.2

LEGEND

- Monitoring Well
- Phase 1: Soil Borings
- DRAINAGE
- RECOVERY SUMP

		NJ Non-Residential Direct Contact Soil (NJAC 7:26D 9/18/17)	NJ Residential Direct Contact Soil (NJAC 7:26D 9/18/17)	NJ Default Impact to Groundwater Soil Screening (NJAC 7:26D 11/13)
Methyl Tert Butyl Ether	mg/kg	320	110	0.2
Methylene chloride	mg/kg	230	46	0.01
Toluene	mg/kg	91000	6300	7
m,p-Xylene	mg/kg	170000	12000	19
Xylene (total)	mg/kg	170000	12000	19
2-Methylnaphthalene	mg/kg	2400	230	8
Naphthalene	mg/kg	17	6	25
Aluminum	mg/kg	NA	78000	6000
Beryllium	mg/kg	140	16	0.7
Lead	mg/kg	800	400	90

Notes:

- All data reported in parts per million (mg/kg)
- Soil Samples Collected in January 2018

FIGURE: 4.65  
TRUCK LOADING RACK  
January 2018 Soil  
Analytical Results - AOC 10

HESS CORPORATION  
FORMER PORT READING COMPLEX  
750 CLIFF ROAD  
PORT READING, NEW JERSEY

Project #:	1114J01	Drawn:	7/19/2019
SRP PI#:	006148	Drawn By:	AE

Earth Systems  
Environmental Engineering  
1625 Highway 71, Belmar, NJ 07719  
T. 732.739.6444 | F. 732.739.0451

This map was developed using New Jersey Department of Environmental Protection Geographic Information System Digital Data, but this secondary product has not been verified by NJDEP and is not state Authorized. Source: NAD 1983 (2011) New Jersey State Plane FIPS 2900 US FT.

## LEGEND

▲ Soil Boring Location

Areas Inaccessible for Drilling

Debris/Obstructions

Safety

	NJ Non-Residential Direct Contact Soil (NJAC 7:26D 9/18/17)	NJ Residential Direct Contact Soil (NJAC 7:26D 9/18/17)	NJ Default Impact to Groundwater Soil Screening (NJAC 7:26D 11/13)
Benzene	5	2	0.005
Ethylbenzene	110000	7800	13
Methyl Tert Butyl Ether	320	110	0.2
Methylene chloride	230	46	0.01
Toluene	91000	6300	7
m,p-Xylene	170000	12000	19
o-Xylene	170000	12000	19
Xylene (total)	170000	12000	19
Total TIC, Volatile	-	-	-
Aluminum	NA	78000	6000
Arsenic	19	19	19
Beryllium	140	16	0.7
Cadmium	78	78	2
Lead	800	400	90
Manganese	5900	11000	65
Mercury	65	23	0.1
Silver	5700	390	1
Vanadium	1100	78	NA

### Notes:

- All data reported in parts per million (mg/kg)
- Soil Samples Collected in June-August, 2019

## TRUCK LOADING RACK 2019 Soil Analytical Results

## HESS CORPORATION FORMER PORT READING COMPLEX 750 CLIFF ROAD PORT READING, NEW JERSEY

Project #: 1114J01 Drawn: 7/23/2019

SRP PI#: 006148 Drawn By: AE

**Earth Systems**  
Environmental Engineering

1625 Highway 71, Belmar, NJ 07719  
T. 732.739.6444 | F. 732.739.0451

This map was developed using New Jersey Department of Environmental Protection Geographic Information System Digital Data, but this secondary product has not been verified by NJDEP and is not state Authorized. Source: NAD 1983 (2011) New Jersey State Plane FIPS 2900 US FT.

Depth:	2.0-3.0'	8.0-9.0'	13.5-14.5'	18.5-19.5'
Benzene:	12	1.26	ND	ND
Ethylbenzene:	26.3	ND	ND	ND
MTBE:	38.2	4.36	ND	ND
Toluene:	25.6	ND	ND	ND
m,p-Xylene:	95.3	ND	ND	ND
o-Xylene:	26.5	ND	ND	ND
Xylene (total):	122	ND	ND	ND
Aluminum:	12600	7570	ND	ND
Beryllium:	0.87	0.72	ND	ND
Manganese:	427	338	ND	ND

Depth:	4.0-5.0'	9.0-10.0'	12.5-13.5'
Benzene:	3.86	0.0576	ND
MTBE:	16.9	16.7	ND
m,p-Xylene:	36.5	ND	ND
Xylene (total):	44	ND	ND
Aluminum:	8960	8450	ND
Beryllium:	1.3	0.81	ND
Manganese:	681	669	ND

Depth:	2.0-3.0'	7.0-8.0'	14.0-15.0'	19.0-20.0'
Aluminum:	13500	13000	ND	ND
Beryllium:	0.82	0.89	ND	ND
Manganese:	452	652	ND	ND

Depth:	4.0-5.0'	9.0-10.0'	13.0-14.0'
Benzene:	6.71	0.0133	ND
Ethylbenzene:	23	ND	ND
MTBE:	32.6	ND	ND
Toluene:	29.7	ND	ND
m,p-Xylene:	85.3	ND	ND
o-Xylene:	27.3	ND	ND
Xylene (total):	113	ND	ND
Aluminum:	10300	6480	ND
Beryllium:	1.4	ND	ND
Manganese:	458	424	ND

Depth:	4.0-5.0'	7.0-8.0'	14.0-15.0'	18.0-19.0'	24.0-25.0'
Benzene:	0.255	ND	ND	ND	ND
Methylene chloride	0.609	ND	0.0064	ND	0.0021
Aluminum:	19200	14100	9250	4250	2100
Arsenic:	53.2	5.8	6.3	2.2	2.4
Beryllium:	0.88	0.58	0.75	0.25	4.3
Manganese:	369	350	781	89.7	2.2
Mercury:	0.12	0.033	0.036	0.035	0.036

Depth:	2.0-3.0'	9.0-10.0'	14.0-15.0'	17.5-18.5'
Benzene:	0.0138	ND	ND	ND
Aluminum:	13300	6730	ND	ND
Arsenic:	ND	ND	21.5	ND
Beryllium:	1	ND	ND	ND
Manganese:	658	488	ND	ND

Depth:	5.0-6.0'	9.0-10.0'	13.5-14.5'	17.5-18.5'
Aluminum:	9440	9450	ND	ND
Beryllium:	ND	0.94	ND	ND
Manganese:	135	148	ND	ND
Mercury:	ND	0.15	ND	ND

Depth:	4.0-5.0'	8.0-9.0'	13.0-14.0'
Aluminum:	11400	7590	ND
Beryllium:	0.98	0.74	ND
Manganese:	585	315	ND

Depth:	2.0-3.0'	9.0-10.0'	13.5-14.5'
Aluminum:	11900	7390	ND
Beryllium:	1.2	0.75	ND
Manganese:	466	664	ND

Depth:	3.0-4.0'	6.5-7.5'	14.0-15.0'
Benzene:	25.5	31.4	ND
Ethylbenzene:	79.1	69.4	ND
MTBE:	175	137	ND
Toluene:	12	ND	ND
m,p-Xylene:	338	214	ND
o-Xylene:	72	ND	ND
Xylene (total):	410	224	ND
Aluminum:	13100	10700	ND
Manganese:	239	182	ND
Mercury:	0.12	0.11	ND

Depth:	9-10'	14-15'	18-19'	24-25'	29-30'
Aluminum	24800	3000	2750	4290	1810
Arsenic:	59.7	11	2.5	8.4	2.3
Beryllium:	2.6	1.1	0.85	2.9	0.6
Cadmium:	2.6	2.8*	0.61	0.59	0.58
Lead:	128	2.3	3	3.6	2.8
Manganese:	209	47.3	3.9	52.9	4.5
Mercury:	1.6	0.032*	0.037*	0.036*	0.036*
Silver:	2.0	2.8*	0.61*	0.59*	0.58*
Vanadium:	101	28*	164	11.4	8.7

Depth:	19.0-20.0'	24.0-25.0'	29.0-30.0'	34.0-35.0'
NO EXCEEDANCES FOR ALL SAMPLES				

Depth:	4.0-5.0'	9.0-10.0'	13.5-14.5'
Benzene:	17.8	0.1	ND
Ethylbenzene:	28	ND	ND
MTBE:	44.2	ND	ND
Toluene:	28.3	ND	ND
m,p-Xylene:	98.4	ND	ND
o-Xylene:	31.4	ND	ND
Xylene (total):	130	ND	ND
Aluminum:	11900	6960	ND
Beryllium:	1.2	ND	ND
Manganese:	501	553	ND

Depth:	3.0-4.0'	8.0-9.0'	14.0-15.0'	18.5-19.5'
Benzene:	11.8	8.46	ND	ND
Ethylbenzene:	34.8	14.6	ND	ND
MTBE:	68.6	43.9	ND	ND
Toluene:	53.1	27.9	ND	ND
m,p-Xylene:	138	47.9	ND	ND
o-Xylene:	43.2	ND	ND	ND
Xylene (total):	181	66.4	ND	ND
Aluminum:	12900	7900	ND	ND
Beryllium:	0.98	0.81	ND	ND
Manganese:	475	419	ND	ND

Depth:	2.0-3.0'	9.0-10.0'	12.5-13.5'
Benzene:	11.2	7.47	ND
Ethylbenzene:	54.9	ND	ND
MTBE:	139	73.5	ND
Toluene:	31.7	ND	ND
m,p-Xylene:	226	ND	ND
o-Xylene:	49.5	ND	ND
Xylene (total):	276	ND	ND
Aluminum:	11900	6960	ND
Manganese:	365	509	ND

Depth:	2.0-3.0'	9.0-10.0'	12.5-13.5'
NO EXCEEDANCES FOR ALL SAMPLES			

1 inch = 100 feet



Table 4-1

Client Sample ID:		NJ Non-Residential Direct Contact Soil (NJAC 7:26D 6/08)	TF1-SS-1 (3.0-3.5)	TF1-SS-2 (1.5-2.0)	TF1-SS-3 (4.0-4.5)	TF1-SS-4 (2.5-3.0)	TF1-SS-5 (9.5-10.0)	TF1-SS-6 (1.0-1.5)	TF1-SS-7 (1.0-1.5)
Lab Sample ID:	JB77402-1		JB77402-2	JB77402-3	JB77402-4	JB77492-1	JB77402-5	JB77402-6	
Date Sampled:	9/22/2014		9/22/2014	9/22/2014	9/22/2014	9/23/2014	9/22/2014	9/22/2014	
Matrix:	Soil		Soil	Soil	Soil	Soil	Soil	Soil	
Volatile Organic Compounds									
Acetone	mg/kg	-	0.0507	ND (0.28)	0.0368	0.0229	0.0161	ND (0.18)	0.0422
Benzene	mg/kg	5	ND (0.00026)	ND (0.019)	ND (0.00014)	ND (0.00016)	0.00029 J	ND (0.013)	ND (0.00019)
Bromochloromethane	mg/kg	-	ND (0.00041)	ND (0.030)	ND (0.00023)	ND (0.00025)	ND (0.00024)	ND (0.020)	ND (0.00030)
Bromodichloromethane	mg/kg	3	ND (0.00030)	ND (0.022)	ND (0.00017)	ND (0.00019)	ND (0.00017)	ND (0.015)	ND (0.00022)
Bromoform	mg/kg	280	ND (0.00026)	ND (0.020)	ND (0.00015)	ND (0.00016)	ND (0.00015)	ND (0.013)	ND (0.00019)
Bromomethane	mg/kg	59	ND (0.00043)	ND (0.032)	ND (0.00024)	ND (0.00027)	ND (0.00025)	ND (0.021)	ND (0.00032)
2-Butanone (MEK)	mg/kg	44,000	ND (0.0028)	ND (0.21)	0.0068 J	ND (0.0017)	ND (0.0016)	ND (0.13)	ND (0.0020)
Carbon disulfide	mg/kg	110,000	0.0018 J	ND (0.032)	0.00044 J	0.0027	ND (0.00025)	ND (0.021)	ND (0.00032)
Carbon tetrachloride	mg/kg	2	ND (0.00021)	ND (0.016)	ND (0.00012)	ND (0.00013)	ND (0.00012)	ND (0.010)	ND (0.00015)
Chlorobenzene	mg/kg	7,400	ND (0.00021)	ND (0.015)	ND (0.00011)	ND (0.00013)	ND (0.00012)	ND (0.010)	ND (0.00015)
Chloroethane	mg/kg	1,100	ND (0.00042)	ND (0.031)	ND (0.00023)	ND (0.00026)	ND (0.00024)	ND (0.020)	ND (0.00031)
Chloroform	mg/kg	2	ND (0.00020)	ND (0.015)	ND (0.00011)	ND (0.00012)	ND (0.00012)	ND (0.0097)	ND (0.00015)
Chloromethane	mg/kg	12	ND (0.00045)	ND (0.033)	ND (0.00025)	ND (0.00028)	ND (0.00026)	ND (0.022)	ND (0.00033)
Cyclohexane	mg/kg	-	ND (0.00052)	ND (0.039)	ND (0.00029)	ND (0.00032)	0.00036 J	ND (0.025)	ND (0.00038)
1,2-Dibromo-3-chloropropane	mg/kg	0.2	ND (0.00058)	ND (0.043)	ND (0.00032)	ND (0.00036)	ND (0.00033)	ND (0.028)	ND (0.00042)
Dibromochloromethane	mg/kg	8	ND (0.00026)	ND (0.019)	ND (0.00014)	ND (0.00016)	ND (0.00015)	ND (0.013)	ND (0.00019)
1,2-Dibromoethane	mg/kg	0.04	ND (0.00027)	ND (0.020)	ND (0.00015)	ND (0.00017)	ND (0.00016)	ND (0.013)	ND (0.00020)
1,2-Dichlorobenzene	mg/kg	59,000	ND (0.00028)	ND (0.021)	ND (0.00015)	ND (0.00017)	ND (0.00016)	ND (0.014)	ND (0.00021)
1,3-Dichlorobenzene	mg/kg	59,000	ND (0.00029)	ND (0.021)	ND (0.00016)	ND (0.00018)	ND (0.00017)	ND (0.014)	ND (0.00021)
1,4-Dichlorobenzene	mg/kg	13	ND (0.00024)	ND (0.018)	ND (0.00014)	ND (0.00015)	ND (0.00014)	ND (0.012)	ND (0.00018)
Dichlorodifluoromethane	mg/kg	230,000	ND (0.00077)	ND (0.057)	ND (0.00043)	ND (0.00048)	ND (0.00045)	ND (0.037)	ND (0.00057)
1,1-Dichloroethane	mg/kg	24	ND (0.00027)	ND (0.020)	ND (0.00015)	ND (0.00017)	ND (0.00016)	ND (0.013)	ND (0.00020)
1,2-Dichloroethane	mg/kg	3	ND (0.00037)	ND (0.028)	ND (0.00021)	ND (0.00023)	ND (0.00022)	ND (0.018)	ND (0.00028)
1,1-Dichloroethene	mg/kg	150	ND (0.00041)	ND (0.030)	ND (0.00023)	ND (0.00025)	ND (0.00024)	ND (0.020)	ND (0.00030)
cis-1,2-Dichloroethene	mg/kg	560	ND (0.00039)	ND (0.029)	ND (0.00021)	ND (0.00024)	ND (0.00022)	ND (0.019)	ND (0.00028)
trans-1,2-Dichloroethene	mg/kg	720	ND (0.00028)	ND (0.021)	ND (0.00015)	ND (0.00017)	ND (0.00016)	ND (0.014)	ND (0.00021)
1,2-Dichloropropane	mg/kg	5	ND (0.00025)	ND (0.019)	ND (0.00014)	ND (0.00016)	ND (0.00015)	ND (0.012)	ND (0.00019)
cis-1,3-Dichloropropene	mg/kg	7	ND (0.00019)	ND (0.014)	ND (0.00010)	ND (0.00012)	ND (0.00011)	ND (0.0091)	ND (0.00014)
trans-1,3-Dichloropropene	mg/kg	7	ND (0.00025)	ND (0.019)	ND (0.00014)	ND (0.00015)	ND (0.00014)	ND (0.012)	ND (0.00018)
Ethylbenzene	mg/kg	110,000	ND (0.00029)	ND (0.021)	ND (0.00016)	ND (0.00018)	0.0055	ND (0.014)	0.00028 J
Freon 113	mg/kg	-	ND (0.00080)	ND (0.060)	ND (0.00044)	ND (0.00050)	ND (0.00046)	ND (0.039)	ND (0.00059)
2-Hexanone	mg/kg	-	ND (0.00024)	ND (0.18)	ND (0.0013)	ND (0.0015)	ND (0.0014)	ND (0.11)	ND (0.0017)
Isopropylbenzene	mg/kg	-	ND (0.00027)	0.811	ND (0.00015)	ND (0.00017)	0.0017 J	0.804	0.0285
Methyl Acetate	mg/kg	-	ND (0.0016)	ND (0.12)	ND (0.00090)	ND (0.0010)	ND (0.00094)	ND (0.079)	ND (0.0012)
Methylcyclohexane	mg/kg	-	ND (0.00032)	0.248	ND (0.00018)	ND (0.00020)	0.00034 J	1.29	0.003
Methyl Tert Butyl Ether	mg/kg	320	ND (0.00025)	ND (0.018)	ND (0.00014)	ND (0.00015)	0.0018	ND (0.012)	ND (0.00018)
4-Methyl-2-pentanone(MIBK)	mg/kg	-	ND (0.00079)	ND (0.059)	ND (0.00044)	ND (0.00049)	ND (0.00046)	ND (0.038)	ND (0.00058)
Methylene chloride	mg/kg	97	ND (0.00022)	ND (0.16)	0.0016 J	ND (0.0014)	ND (0.0013)	ND (0.11)	ND (0.0016)
Styrene	mg/kg	260	ND (0.00027)	ND (0.020)	ND (0.00015)	ND (0.00016)	ND (0.00015)	ND (0.013)	ND (0.00020)
Tert Butyl Alcohol	mg/kg	11,000	ND (0.0040)	ND (0.30)	ND (0.0022)	ND (0.0025)	0.0128 J	ND (0.20)	ND (0.0030)
1,1,2,2-Tetrachloroethane	mg/kg	3	ND (0.00032)	ND (0.024)	ND (0.00018)	ND (0.00020)	ND (0.00019)	ND (0.016)	ND (0.00024)
Tetrachloroethene	mg/kg	5	ND (0.00026)	ND (0.019)	ND (0.00014)	ND (0.00016)	ND (0.00015)	ND (0.013)	ND (0.00019)
Toluene	mg/kg	91,000	ND (0.00034)	ND (0.026)	ND (0.00019)	ND (0.00021)	ND (0.00020)	ND (0.017)	ND (0.00025)
1,2,3-Trichlorobenzene	mg/kg	-	ND (0.00030)	ND (0.022)	ND (0.00017)	ND (0.00019)	ND (0.00017)	ND (0.015)	ND (0.00022)
1,2,4-Trichlorobenzene	mg/kg	820	ND (0.00027)	ND (0.020)	ND (0.00015)	ND (0.00016)	ND (0.00015)	ND (0.013)	ND (0.00020)
1,1,1-Trichloroethane	mg/kg	4,200	ND (0.00021)	ND (0.015)	ND (0.00011)	ND (0.00013)	ND (0.00012)	ND (0.010)	ND (0.00015)
1,1,2-Trichloroethane	mg/kg	6	ND (0.00033)	ND (0.024)	ND (0.00018)	ND (0.00020)	ND (0.00019)	ND (0.016)	ND (0.00024)
Trichloroethene	mg/kg	20	ND (0.00030)	ND (0.022)	ND (0.00016)	ND (0.00018)	ND (0.00017)	ND (0.014)	ND (0.00022)
Trichlorofluoromethane	mg/kg	340,000	ND (0.00025)	ND (0.019)	ND (0.00014)	ND (0.00016)	ND (0.00015)	ND (0.012)	ND (0.00019)
Vinyl chloride	mg/kg	2	ND (0.00055)	ND (0.041)	ND (0.00031)	ND (0.00034)	ND (0.00032)	ND (0.027)	ND (0.00041)
m,p-Xylene	mg/kg	170,000	ND (0.00061)	ND (0.045)	ND (0.00034)	ND (0.00037)	ND (0.00035)	ND (0.029)	ND (0.00045)
o-Xylene	mg/kg	170,000	ND (0.00032)	ND (0.024)	ND (0.00018)	ND (0.00020)	ND (0.00018)	ND (0.015)	ND (0.00023)
Xylene (total)	mg/kg	170,000	ND (0.00032)	ND (0.024)	ND (0.00018)	ND (0.00020)	ND (0.00018)	ND (0.015)	ND (0.00023)
Volatile Organic Tentatively Identified Compounds									
Total TIC, Volatile	mg/kg	-	0	160.8 J (15)	0	0	0.0225 J (2)	126.9 J (10)	0.92 J (12)
Total Alkanes	mg/kg	-	0	0	0	0	0	54.9 J	0.084 J
General Chemistry									
Solids, Percent	%	-	91.2	81.6	-	-	-	84.7	85
All results in mg/kg unless otherwise noted.									
							milligrams per kilogram	mg/kg	
							Estimated Value	J	
							Not Sampled	NS	
							Not Detected	ND	
							Not Analyzed	NA	
							Method Detection Limit	( )	
							Compound Found in Blank	B	
							Health based standard defaults to soil saturation limit	**	
Exceeds NJDEP Non-Residential Soil Remediation Standard		Result is from 2nd run							a b

Table 4-1  
Hess Corporation - Former Port Reading Complex (HC-PR) - 750 Cliff Road, Port Reading, New Jersey  
Summary of soil Analytical Results - AOC 15b

Sample ID	NJ Non-Residential Direct Contact Soil	AOC15B-SS-1	AOC15B-SS-2	AOC15B-SS-3		AOC15B-SS-4	AOC15B-SS-5	AOC15B-SS-6
Sample Date		10/9/2014	10/9/2014	10/1/2014		10/1/2014	10/1/2014	10/1/2014
Depth (ft bgs)		4.5-5.0	6.5-7.0	4.0-4.5	7.0-7.5	4.0-4.5	4.0-4.5	4.0-4.5
Extractable Petroleum Hydrocarbons								
Total EPH (mg/kg)	54,000	ND	ND	ND	ND	ND	ND	ND
Total Petroleum Hydrocarbons (TPH)	-	NA	NA	NA	NA	NA	NA	NA
Solids, Percent	-	93.3	94.9	94.5	89.6	93.9	91.5	80.4
<p>All results in mg/kg unless otherwise noted.</p> <p>milligrams per kilogram      mg/kg</p> <p>Estimated Value      J</p> <p>Not Sampled      NS</p> <p>Not Detected      ND</p> <p>Not Analyzed      NA</p> <p>Method Detection Limit      ( )</p> <p>Compound Found in Blank      B</p> <p>Health based standard defaults to soil saturation limit      **</p> <p>Exceeds NJDEP Non-Residential Soil Remediation Standard      b</p> <p>Result is from 2nd run      a</p>								

Table 4-1

Hess Corporation - Former Port Reading Complex (HC-PR) - 750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Sample Results at AOC 15c - Former UST Area (UST 0004)

Sample ID	NJ Non-Residential Direct Contact Soil	AOC15C-SS-1	AOC15C-SS-2	AOC15C-SS-3	AOC15C-SS-4
Sample Date		9/29/2014	9/29/2014	9/29/2014	9/29/2014
Sample Depth		5.5-6.0	5.5-6.0	1.0-1.5	5.5-6.0
Matrix		Soil	Soil	Soil	Soil
Extractable Petroleum Hydrocarbons					
Total EPH (mg/kg)	54,000	ND	284	138	ND
General Chemistry					
Solids, Percent	-	87.0	80.2	84.5	85.5

All results in mg/kg unless otherwise noted.

mg/kg                      milligrams per kilogram

J                              Estimated Value

NS                            Not Sampled

ND                            Not Detected

NA                            Not Analyzed

( )                            Method Detection Limit

B                              Compound Found in Blank

\*\*                            Health based standard defaults to soil saturation limit

b                              Result is from 2nd run

a                              Result is from 2nd run

Exceeds NJDEP Non-Residential Soil Remediation Standard



Table 4-1

Client Sample ID:		NJ Non-Residential Direct Contact Soil	TL-SS-4V (5.5-6.0)	TL-SS-5V (6.5-7.0)	TL-SS-6V (5.5-6.0)	TL-SS-8VV (6.0-6.5)	TL-SS-10VV (19.5-20.0)	TL-SS-11VV (12.5-13.0)	TL-SS-12VV (12.5-13.0)	TL-SS-13V (6.5-7.0)	TL-SS-16 (5.0-5.5)
Lab Sample ID:			JB78813-1	JB78685-3	JB78545-2	JB78685-2	JB78545-3	JB78545-4	JB78685-1	JB78545-1	JB78813-2
Date Sampled:			10/9/2014	10/8/2014	10/7/2014	10/8/2014	10/7/2014	10/7/2014	10/8/2014	10/7/2014	10/9/2014
Sample Depth:			5.5-6.0	6.5-7.0	5.5-6.0	6.0-6.5	19.5-20.0	12.5-13.0	12.5-13.0	6.5-7.0	5.0-5.5
Matrix:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Volatile Organic Compounds											
Acetone	mg/kg	--	ND	ND	0.0502	0.0314	0.0417	0.0114	0.0388	0.0288	ND
Benzene	mg/kg	5	ND	ND	0.0014	0.00034 J	0.0151	0.00026 J	ND	0.00072	ND
2-Butanone (MEK)	mg/kg	44,000	ND	ND	0.0080 J	ND	ND	ND	ND	ND	ND
Carbon disulfide	mg/kg	110,000	ND	ND	0.0044	ND	0.0069	0.00088 J	0.0083	0.0006 J	ND
Chlorobenzene	mg/kg	7400	ND	0.0843 J	ND	ND	0.00021 J	ND	ND	ND	ND
Cyclohexane	mg/kg	--	ND	0.0257 J	ND	ND	0.0018 J	ND	0.00062 J	ND	ND
1,4 Dichlorobenzene	mg/kg	13	ND	ND	ND	ND	ND	ND	ND	ND	ND
Ethylbenzene	mg/kg	110,000	ND	0.0161 J	ND	ND	0.00029 J	ND	ND	0.00021 J	ND
Isopropylbenzene	mg/kg	--	ND	0.959	ND	ND	0.0011 J	0.00058 J	0.0007 J	ND	ND
Methylcyclohexane	mg/kg	--	ND	0.38	0.00036 J	0.00067 J	0.0026	ND	0.0014 J	ND	ND
Methyl Tert Butyl Ether (MTBE)	mg/kg	110	ND	ND	ND	ND	0.0018	0.00062 J	ND	ND	ND
Methylene chloride	mg/kg	97	ND	ND	ND	0.0018 J	0.0021 J	ND	0.002 J	ND	ND
Tert Butyl Alcohol (TBA)	mg/kg	11,000	ND	ND	ND	ND	0.117	0.0527	ND	ND	ND
Toluene	mg/kg	91,000	ND	ND	ND	ND	0.00076 J	ND	ND	ND	ND
Xylene (total)	mg/kg	170,000	ND	0.0210 J	0.00023 J	ND	0.00075 J	ND	ND	ND	ND
Total Volatile TICs	mg/kg	--	ND	21.3 J (10)	0.0526 J (5)	ND	0.0507 J (5)	0.0252 J (3)	0.506 J (15)	ND	ND
Semi-Volatile Organic Compounds											
Acenaphthene	mg/kg	37,000	ND	NA	ND	NA	ND	ND	NA	ND	ND
Acenaphthylene	mg/kg	300,000	ND	NA	ND	NA	ND	ND	NA	ND	ND
Anthracene	mg/kg	30,000	ND	NA	ND	NA	ND	ND	NA	ND	ND
Benzo(a)anthracene	mg/kg	2	ND	NA	ND	NA	ND	ND	NA	ND	ND
Benzo(a)pyrene	mg/kg	0.2	ND	NA	ND	NA	ND	ND	NA	ND	ND
Benzo(b)fluoranthene	mg/kg	2	ND	NA	ND	NA	ND	ND	NA	ND	ND
Benzo(g,h,i)perylene	mg/kg	30,000	ND	NA	ND	NA	ND	ND	NA	ND	ND
Benzo(k)fluoranthene	mg/kg	23	ND	NA	ND	NA	ND	ND	NA	ND	ND
1,1' Biphenyl	mg/kg	34,000	ND	NA	ND	NA	ND	ND	NA	ND	ND
bis(2-Ethylhexyl)phthalate	mg/kg	140	ND	NA	0.0486 J	NA	ND	ND	NA	0.0402 J	ND
Caprolactam	mg/kg	340,000	ND	NA	ND	ND	ND	ND	ND	ND	0.0607 J
Carbazole	mg/kg	96	ND	NA	ND	NA	ND	ND	NA	ND	ND
Chrysene	mg/kg	230	ND	NA	ND	NA	ND	ND	NA	ND	ND
Dibenz(a,h)anthracene	mg/kg	0.2	ND	NA	ND	NA	ND	ND	NA	ND	ND
Dibenzofuran	mg/kg	--	ND	NA	ND	NA	ND	ND	NA	ND	0.205
Diethyl phthalate	mg/kg	550,000	ND	NA	ND	NA	ND	ND	NA	ND	ND
Di-n-butyl phthalate	mg/kg	68,000	0.0583 J	NA	0.0745 J	NA	0.0537 J	0.177	NA	0.0526 J	ND
Fluoranthene	mg/kg	24,000	ND	NA	ND	NA	0.0182 J	ND	NA	ND	ND
Fluorene	mg/kg	24,000	ND	NA	ND	NA	ND	ND	NA	ND	ND
Indeno(1,2,3-cd)pyrene	mg/kg	2	ND	NA	ND	NA	ND	ND	NA	ND	ND
2-Methylnaphthalene	mg/kg	2,400	ND	NA	ND	NA	ND	ND	NA	ND	ND
Phenanthrene	mg/kg	300,000	ND	NA	ND	NA	ND	ND	NA	ND	ND
Pyrene	mg/kg	18,000	ND	NA	ND	NA	0.0193 J	0.019 J	NA	ND	ND
Naphthalene	mg/kg	17	ND	NA	ND	NA	ND	ND	NA	ND	ND
Total Semi-Volatile TICs	mg/kg	--	0.420 J (3)	NA	4.580 J (3)	NA	1.340J (5)	4.37 J (4)	NA	5.87 J (5)	1.67 J (7)
EPH											
Total EPH		54,000	143	710	ND	ND	24.4	ND	175	ND	ND
PCBs											
Total Polychlorinated biphenyl (PCBs)		1	NA	NA	NA	NA	NA	NA	NA	NA	NA
Metal Compounds											
Aluminum	mg/kg	NA*	NA	NA	NA	NA	NA	NA	NA	NA	NA
Antimony	mg/kg	450	NA	NA	NA	NA	NA	NA	NA	NA	NA
Arsenic	mg/kg	19*	NA	NA	NA	NA	NA	NA	NA	NA	NA
Barium	mg/kg	59,000	NA	NA	NA	NA	NA	NA	NA	NA	NA
Beryllium	mg/kg	140	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cadmium	mg/kg	78	NA	NA	NA	NA	NA	NA	NA	NA	NA
Calcium	mg/kg	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Chromium	mg/kg	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Cobalt	mg/kg	590	NA	NA	NA	NA	NA	NA	NA	NA	NA
Copper	mg/kg	45,000	NA	NA	NA	NA	NA	NA	NA	NA	NA
Iron	mg/kg	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Lead	mg/kg	800	8.3	7.3	4.3	8.0	6.3	3.3	5.2	4.2	6.2
Magnesium	mg/kg	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Manganese	mg/kg	5,900	NA	NA	NA	NA	NA	NA	NA	NA	NA
Mercury	mg/kg	65	NA	NA	NA	NA	NA	NA	NA	NA	NA
Nickel	mg/kg	23,000	NA	NA	NA	NA	NA	NA	NA	NA	NA
Potassium	mg/kg	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Selenium	mg/kg	5,700	NA	NA	NA	NA	NA	NA	NA	NA	NA
Silver	mg/kg	5,700	NA	NA	NA	NA	NA	NA	NA	NA	NA
Sodium	mg/kg	--	NA	NA	NA	NA	NA	NA	NA	NA	NA
Thallium	mg/kg	79	NA	NA	NA	NA	NA	NA	NA	NA	NA
Vanadium	mg/kg	1,100	NA	NA	NA	NA	NA	NA	NA	NA	NA
Zinc	mg/kg	110,000	NA	NA	NA	NA	NA	NA	NA	NA	NA
All results in mg/kg unless otherwise noted.											
milligrams per kilogram											
Estimated Value											
J											
Not Sampled											
NS											
Not Detected											
ND											
Not Analyzed											
NA											
Method Detection Limit											
( )											
Compound Found in Blank											
B											
Health based standard defaults to soil saturation limit											
**											
Result is from 2nd run											
b											
Result is from 2nd run											
a											
Exceeds NJDEP Non-Residential Soil Remediation Standard											

Table 4-1

Hess Corporation - Former Port Reading Complex (HC-PR) - 750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Sample Results - AOC 20a - Former T-1600 A/B Transformers

Client Sample ID:		NJ Non-Residential Direct Contact Soil	TFD-SS-1	TFD-SS-2	TFD-SS-3	TFD-SS-4
Lab Sample ID:			JB98904-17	JB98904-16	JB98904-18	JB98904-19
Date Sampled:			7/9/2015	7/9/2015	7/9/2015	7/9/2015
Matrix:			Soil	Soil	Soil	Soil
Depth:			1.0-1.5 ft	1.0-1.5 ft	1.0-1.5 ft	1.0-1.5 ft
GC Semi-volatiles (NJDEP EPH)						
EPH (C9-C28)	mg/kg	-	ND (5.4)	ND (4.6)	20.2	ND (5.8)
EPH (>C28-C40)	mg/kg	-	ND (5.4)	ND (4.6)	22.3	ND (5.8)
Total EPH (C9-C40)	mg/kg	-	ND (5.4)	ND (4.6)	42.5	ND (5.8)
GC Semi-volatiles (SW846 8082A)						
Aroclor 1016	mg/kg	1	ND (0.014)	ND (0.011)	ND (0.012)	ND (0.013)
Aroclor 1221	mg/kg	1	ND (0.025)	ND (0.020)	ND (0.022)	ND (0.024)
Aroclor 1232	mg/kg	1	ND (0.014)	ND (0.011)	ND (0.012)	ND (0.013)
Aroclor 1242	mg/kg	1	ND (0.019)	ND (0.015)	ND (0.017)	ND (0.018)
Aroclor 1248	mg/kg	1	ND (0.013)	ND (0.010)	ND (0.011)	ND (0.012)
Aroclor 1254	mg/kg	1	ND (0.019)	ND (0.015)	ND (0.016)	ND (0.018)
Aroclor 1260	mg/kg	1	ND (0.018)	ND (0.014)	ND (0.015)	ND (0.017)
Aroclor 1268	mg/kg	1	ND (0.013)	ND (0.010)	ND (0.011)	ND (0.012)
Aroclor 1262	mg/kg	1	ND (0.012)	ND (0.0095)	ND (0.010)	ND (0.011)
General Chemistry						
Solids, Percent	%	-	78.1	87.5	90.8	72.7

milligrams per kilogram mg/kg

Estimated Value J

Not Sampled NS

Not Detected ND

Not Analyzed NA

Method Detection Limit ( )

Compound Found in Blank B

Health based standard defaults to soil saturation limit \*\*

Result is from 2nd run b

Result is from 2nd run a

Exceeds NJDEP Non-Residential Soil Remediation Standard

All results in mg/kg unless otherwise noted.

Table 4-1

Client Sample ID:		NJ Non-Residential Direct Contact Soil	TFFT-SS-1	TFFT-SS-1	TFFT-SS-1	TFFT-SS-2	TFFT-SS-3	TFFT-SS-4
Lab Sample ID:			JB99093-6	JB99093-6R	JB99093-6T	JB99093-7	JB99093-8	JB99093-9
Date Sampled:			7/13/2015	7/13/2015	7/13/2015	7/13/2015	7/13/2015	7/13/2015
Matrix:			Soil	Soil	Soil	Soil	Soil	Soil
Depth:			1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft	1.0-1.5 ft
GC/MS Semi-volatiles (SW846 8270D)								
Acenaphthene	mg/kg	37000	-	ND (0.030)	-	-	-	-
Acenaphthylene	mg/kg	300000	-	ND (0.027)	-	-	-	-
Anthracene	mg/kg	30000	-	ND (0.027)	-	-	-	-
Benzo(a)anthracene	mg/kg	2	-	0.256	-	-	-	-
Benzo(a)pyrene	mg/kg	0.2	-	0.426	-	-	-	-
Benzo(b)fluoranthene	mg/kg	2	-	0.21	-	-	-	-
Benzo(g,h,i)perylene	mg/kg	30000	-	0.338	-	-	-	-
Benzo(k)fluoranthene	mg/kg	23	-	ND (0.057)	-	-	-	-
Chrysene	mg/kg	230	-	0.641	-	-	-	-
Dibenzo(a,h)anthracene	mg/kg	0.2	-	0.142 J	-	-	-	-
Fluoranthene	mg/kg	24000	-	0.115 J	-	-	-	-
Fluorene	mg/kg	24000	-	ND (0.034)	-	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	2	-	0.121 J	-	-	-	-
Naphthalene	mg/kg	17	-	ND (0.027)	-	-	-	-
Phenanthrene	mg/kg	300000	-	0.181	-	-	-	-
Pyrene	mg/kg	18000	-	0.299	-	-	-	-
GC Semi-volatiles (NJDEP EPH)								
EPH (C9-C28)	mg/kg	-	5410	-	-	ND (4.6)	ND (4.4)	89.8
EPH (>C28-C40)	mg/kg	-	1370	-	-	ND (4.6)	ND (4.4)	250
Total EPH (C9-C40)	mg/kg	-	6780	-	-	ND (4.6)	ND (4.4)	340
C10-C12 Aromatics	mg/kg	-	-	-	ND (0.32)	-	-	-
C12-C16 Aromatics	mg/kg	-	-	-	ND (0.51)	-	-	-
C16-C21 Aromatics	mg/kg	-	-	-	416	-	-	-
C21-C36 Aromatics	mg/kg	-	-	-	492	-	-	-
Total Aromatics	mg/kg	-	-	-	908	-	-	-
C9-C12 Aliphatics	mg/kg	-	-	-	ND (0.30)	-	-	-
C12-C16 Aliphatics	mg/kg	-	-	-	85.5	-	-	-
C16-C21 Aliphatics	mg/kg	-	-	-	1280	-	-	-
C21-C40 Aliphatics	mg/kg	-	-	-	1040	-	-	-
Total Aliphatics	mg/kg	-	-	-	2400	-	-	-
Total EPH	mg/kg	-	-	-	3310	-	-	-
GC Semi-volatiles (SW846 8082A)								
Aroclor 1016	mg/kg	1	ND (0.015)	-	-	ND (0.012)	ND (0.011)	ND (0.011)
Aroclor 1221	mg/kg	1	ND (0.027)	-	-	ND (0.022)	ND (0.020)	ND (0.021)
Aroclor 1232	mg/kg	1	ND (0.015)	-	-	ND (0.013)	ND (0.011)	ND (0.012)
Aroclor 1242	mg/kg	1	ND (0.021)	-	-	ND (0.017)	ND (0.015)	ND (0.016)
Aroclor 1248	mg/kg	1	ND (0.014)	-	-	ND (0.012)	ND (0.010)	ND (0.011)
Aroclor 1254	mg/kg	1	0.687	-	-	ND (0.017)	ND (0.015)	ND (0.016)
Aroclor 1260	mg/kg	1	ND (0.019)	-	-	ND (0.016)	ND (0.014)	ND (0.015)
Aroclor 1268	mg/kg	1	ND (0.014)	-	-	ND (0.012)	ND (0.010)	ND (0.011)
Aroclor 1262	mg/kg	1	ND (0.013)	-	-	ND (0.011)	ND (0.0094)	ND (0.010)
General Chemistry								
Solids, Percent	%	-	70.3	-	-	85	90.6	91.3

All results in mg/kg unless otherwise noted.

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milligrams per kilogram      mg/kg

Estimated Value

Not Sampled

Not Detected

Not Analyzed

Method Detection Limit

Compound Found in Blank

Health based standard defaults to soil saturation limit

Result is from 2nd run



Table 4-1  
Former Hess Terminal - 750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Sample Results at AOC 20c -T2606-A/B Transformers

Client Sample ID:		NJ Non-Residential Direct Contact Soil	TF-WWT-SS-1	TF-WWT-SS-1	TF-WWT-SS-2	TF-WWT-SS-3	TF-WWT-SS-4
Lab Sample ID:			JB99834-3	JB99834-3R	JB99834-4	JB99834-5	JB99834-6
Date Sampled:			7/22/2015	7/22/2015	7/22/2015	7/22/2015	7/22/2015
Matrix:			Soil	Soil	Soil	Soil	Soil
Depth:			0-0.5 ft	0-0.5 ft	0-0.5 ft	0-0.5 ft	0-0.5 ft
GC/MS Semi-volatiles (SW846 8270D)							
Acenaphthene	mg/kg	37000	-	ND (0.024)	-	-	-
Acenaphthylene	mg/kg	300000	-	ND (0.021)	-	-	-
Anthracene	mg/kg	30000	-	ND (0.021)	-	-	-
Benzo(a)anthracene	mg/kg	2	-	ND (0.030)	-	-	-
Benzo(a)pyrene	mg/kg	0.2	-	ND (0.037)	-	-	-
Benzo(b)fluoranthene	mg/kg	2	-	ND (0.045)	-	-	-
Benzo(g,h,i)perylene	mg/kg	30000	-	0.0862 J	-	-	-
Benzo(k)fluoranthene	mg/kg	23	-	ND (0.045)	-	-	-
Chrysene	mg/kg	230	-	ND (0.031)	-	-	-
Dibenzo(a,h)anthracene	mg/kg	0.2	-	ND (0.037)	-	-	-
Fluoranthene	mg/kg	24000	-	ND (0.021)	-	-	-
Fluorene	mg/kg	24000	-	ND (0.027)	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	2	-	ND (0.055)	-	-	-
Naphthalene	mg/kg	17	-	ND (0.021)	-	-	-
Phenanthrene	mg/kg	300000	-	ND (0.021)	-	-	-
Pyrene	mg/kg	18000	-	ND (0.028)	-	-	-
GC Semi-volatiles (NJDEP EPH)							
EPH (C9-C28)	mg/kg	-	468	-	214	14.9	436
EPH (>C28-C40)	mg/kg	-	120	-	100	ND (4.1)	217
Total EPH (C9-C40)	mg/kg	-	588	-	314	14.9	652
GC Semi-volatiles (SW846 8082A)							
Aroclor 1016	mg/kg	1	ND (0.011)	-	ND (0.011)	ND (0.011)	ND (0.011)
Aroclor 1221	mg/kg	1	ND (0.021)	-	ND (0.020)	ND (0.020)	ND (0.020)
Aroclor 1232	mg/kg	1	ND (0.012)	-	ND (0.011)	ND (0.011)	ND (0.011)
Aroclor 1242	mg/kg	1	ND (0.016)	-	ND (0.015)	ND (0.015)	ND (0.015)
Aroclor 1248	mg/kg	1	ND (0.011)	-	ND (0.010)	ND (0.010)	ND (0.010)
Aroclor 1254	mg/kg	1	ND (0.016)	-	ND (0.015)	ND (0.015)	0.0849
Aroclor 1260	mg/kg	1	ND (0.015)	-	ND (0.014)	ND (0.014)	ND (0.014)
Aroclor 1268	mg/kg	1	ND (0.011)	-	ND (0.010)	ND (0.010)	ND (0.010)
Aroclor 1262	mg/kg	1	ND (0.010)	-	ND (0.0095)	ND (0.0096)	ND (0.0095)
General Chemistry							
Solids, Percent	%	-	87.7	-	88.7	91.6	89.6

All results in mg/kg unless otherwise noted.

milligrams per kilogram mg/kg

Estimated Value J

Not Sampled NS

Not Detected ND

Not Analyzed NA

Method Detection Limit ( )

Compound Found in Blank B

Health based standard defaults to soil saturation limit \*\*

Result is from 2nd run a b

Exceeds NJDEP Non-Residential Soil Remediation Standard

Table 4-1  
Hess Corporation - Former Port Reading Complex (HC-PR) - 750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Analytical Results - AOC-21 - X-1933 (Adsorber Feed Sump)

Client Sample ID:		NJ Non- Residential Direct Contact Soil	ADFS-SB-4
Lab Sample ID:			JB64101-1
Date Sampled:			4/7/2014
Sample Depth:			12.0-12.5
Matrix:			Soil
Volatile Organic Compounds			
Acetone	mg/k	-	ND
Benzene	mg/k	5	0.0472 J
2-Butanone	mg/k	44000	ND
Carbon Disulfide	mg/k	110000	ND
Chlorobenzene	mg/k	7400	ND
Cyclohexane	mg/k	-	0.180 J
1,2 Dichlorobenzene	mg/k	59000	ND
1,4 Dichlorobenzene	mg/k	13	ND
Ethylbenzene	mg/k	110000	0.226
Isopropylbenzene	mg/k	-	2.02
Methyl acetate	mg/k	-	ND
Methylcyclohexane	mg/k	-	0.713
Methyl Tertiary Butyl Ether	mg/k	320	ND
Methylene chloride	mg/k	97	ND
tertiary Butyl alcohol (TBA)	mg/k	11000	ND
Toluene	mg/k	91000	ND
Total Xylene	mg/k	170000	0.281
Total Volatile TICs	mg/k	-	61.7 (11) J
Acenaphthene	mg/k	37000	ND
Acenaphthylene	mg/k	300000	ND
Anthracene	mg/k	30000	0.129 J
Benzo(a)anthracene	mg/k	2	0.0873 J
Benzo(a)pyrene	mg/k	0.2	ND
Benzo(b)fluoranthene	mg/k	2	ND
Benzo(g,h,i)perylene	mg/k	30000	ND
Benzo(k)fluoranthene	mg/k	23	ND
1,1'-Biphenyl	mg/k	34000	ND
Carbazole	mg/k	96	ND
Chrysene	mg/k	230	0.377
Dibenz(a,h)anthracene	mg/k	0.2	ND
Dibenzofuran	mg/k	-	ND
Diethyl phthalate	mg/k	550000	ND
Di-n-butyl phthalate	mg/k	68000	ND
Di-n-octyl phthalate	mg/k	27000	ND
bis(2-Ethylhexyl)phthalate	mg/k	140	ND
Fluoranthene	mg/k	24000	0.169 J
Fluorene	mg/k	24000	0.429
Indeno (1,2,3-cd) pyrene	mg/k	2	ND
2-Methylnaphthalene	mg/k	2400	3.84
Naphthalene	mg/k	17	ND
N-Nitrosodiphenylamine	mg/k	390	ND
Phenanthrene	mg/k	300000	1.45
Pyrene	mg/k	18000	0.368
Total Semi-Volatile TICs	mg/k	-	173.4 (20) J
Metals			
Aluminum	mg/k	-	5,450
Antimony	mg/k	450	<2.2
Arsenic	mg/k	19^	7.0
Barium	mg/k	59000	28.2
Beryllium	mg/k	140	0.53
Cadmium	mg/k	78	<0.56
Calcium	mg/k	-	4,200
Chromium	mg/k	-	26.7
Cobalt	mg/k	590	<5.6
Copper	mg/k	45000	28.1
Iron	mg/k	-	35,700
Lead	mg/k	800	19.1
Magnesium	mg/k	-	2,620
Manganese	mg/k	5900	205
Mercury	mg/k	65	0.049
Nickel	mg/k	23000	13.7
Potassium	mg/k	-	<1,100
Selenium	mg/k	5700	<2.2
Silver	mg/k	5700	1.5
Sodium	mg/k	-	<1,100
Thallium	mg/k	79	<1.1
Vanadium	mg/k	1100	33.6
Metals			
Zinc	mg/k	110000	93.9
General Chemistry			
Ammonia	mg/k	-	16.0
Solids (%)	mg/k	-	89.9

All results in mg/kg unless otherwise noted.

mg/kg	Exceeds NJDEP Non-Residential Soil Remediation Standard
J	milligrams per kilogram
NS	Estimated Value
ND	Not Sampled
NA	Not Detected
( )	Not Analyzed
B	Method Detection Limit
**	Compound Found in Blank
a	Health based standard defaults to soil saturation limit
b	Result is from 2nd run

Table 4-1  
Hess Corporation - Former Port Reading Complex (HC-PR) - 750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Analytical Results - AOC 22 - X-1908 (Clarifier Lifting Sump)

Client Sample ID:		NJ Non-Residential Direct Contact Soil	CLS-SB-1 (7.5-8.0)	CLS-SB-2 (3.0-3.5)	CLS-SB-3 (9.0-9.5)
Lab Sample ID:			JB64101-2	JB64101-2	JB64101-3
Date Sampled:			4/7/2014	4/8/2014	4/8/2014
Sample Depth:			7.5-8.0	3.0-3.5	9.0-9.5
Matrix:			Soil	Soil	Soil
<b>Volatile Organic Compounds</b>					
Acetone	mg/kg	-	ND	0.0114	0.0095 J
Benzene	mg/kg	5	ND	0.0047	0.00066 J
2-Butanone	mg/kg	44000	ND	ND	ND
Carbon Disulfide	mg/kg	110000	ND	0.00092 J	0.0024 J
Chlorobenzene	mg/kg	7400	ND	0.00081 J	ND
Cyclohexane	mg/kg	-	ND	0.0058	0.00071 J
1,2 Dichlorobenzene	mg/kg	59000	ND	ND	0.00051 J
1,4 Dichlorobenzene	mg/kg	13	ND	ND	ND
Ethylbenzene	mg/kg	110000	0.0251 J	0.006	0.00073 J
Isopropylbenzene	mg/kg	-	ND	0.0119 J	0.0017 J
Methyl acetate	mg/kg	-	ND	ND	ND
Methylcyclohexane	mg/kg	-	ND	0.0233	0.0045 J
Methyl Tertiary Butyl Ether	mg/kg	320	ND	ND	ND
Methylene chloride	mg/kg	97	ND	ND	ND
tertiary Butyl alcohol (TBA)	mg/kg	11000	ND	ND	ND
Toluene	mg/kg	91000	ND	0.00046 J	ND
Total Xylene	mg/kg	170000	0.0308 J	0.00073 J	0.00075 J
Total Volatile TICs	mg/kg	-	17.8 (4) J	1.1 (11) J	0.265 (12) J
<b>Semi-Volatile Organic Compounds</b>					
Acenaphthene	mg/kg	37000	2.50	1.18	0.245
Acenaphthylene	mg/kg	300000	0.0514	ND	ND
Anthracene	mg/kg	30000	0.372	1.57	0.329
Benzo(a)anthracene	mg/kg	2	0.252	7.270	0.929
Benzo(a)pyrene	mg/kg	0.2	0.0868 J	3.7	0.619
Benzo(b)fluoranthene	mg/kg	2	0.125	1.55	0.265
Benzo(g,h,i)perylene	mg/kg	30000	0.0243 J	1.1	0.204
Benzo(k)fluoranthene	mg/kg	23	0.0481	0.254	ND
1,1'-Biphenyl	mg/kg	34000	0.296	ND	ND
Carbazole	mg/kg	96	0.512	ND	ND
Chrysene	mg/kg	230	0.222	12.9	1.81
Dibenz(a,h)anthracene	mg/kg	0.2	ND	0.587	0.0911 J
Dibenzofuran	mg/kg	-	1.40	0.944	0.0897 J
Diethyl phthalate	mg/kg	550000	ND	ND	ND
Di-n-butyl phthalate	mg/kg	68000	ND	ND	ND
Di-n-octyl phthalate	mg/kg	27000	ND	ND	ND
bis(2-Ethylhexyl)phthalate	mg/kg	140	ND	ND	ND
Fluoranthene	mg/kg	24000	1.49	2.19	0.467
Fluorene	mg/kg	24000	1.44	2.22	ND
Indeno (1,2,3-cd) pyrene	mg/kg	2	0.0226 J	0.436	ND
2-Methylnaphthalene	mg/kg	2400	0.538	2.65	ND
Naphthalene	mg/kg	17	3.58	3.69	ND
N-Nitrosodiphenylamine	mg/kg	390	ND	ND	ND
Phenanthrene	mg/kg	300000	2.94	14.6	0.539
Pyrene	mg/kg	18000	1.16	10.0	1.66
Total Semi-Volatile TICs	mg/kg	-	5.35 (19) J	219.4 (21) J	60.4 (24) J
<b>Metals</b>					
Aluminum	mg/kg	-	35,200	20,200	23,100
Antimony	mg/kg	450	<7.0	<4.7	60.5a
Arsenic	mg/kg	19*	54.9	40.5	36.5a
Barium	mg/kg	59000	680	331	353
Beryllium	mg/kg	140	2.6	1.2	1.7
Cadmium	mg/kg	78	<1.7	<1.2	1.2a
Calcium	mg/kg	-	16,600	9,360	8,820
Chromium	mg/kg	-	87.7	69.7	73.9a
Cobalt	mg/kg	590	13.3	17.4	9.5
Copper	mg/kg	45000	34.4	56.9	302a
Iron	mg/kg	-	102,000	44,000	53,200
Lead	mg/kg	800	20.9	84.3	1,070a
Magnesium	mg/kg	-	4,340	1,930	2,260
Manganese	mg/kg	5900	193	190	123
Mercury	mg/kg	65	0.052	0.041	<0.035
Nickel	mg/kg	23000	51.8	41.1	39.4
Potassium	mg/kg	-	3,220	1,360	2,350
Selenium	mg/kg	5700	<7.0	<4.7	<4.3a
Silver	mg/kg	5700	<1.7	<1.2	<1.1a
Sodium	mg/kg	-	1,240	1,560	<1,100
Thallium	mg/kg	79	<3.5	<2.3	<2.1a
Vanadium	mg/kg	1100	182	132	175
Zinc	mg/kg	110000	52.6	123	108
<b>Miscellaneous</b>					
Ammonia		-	13.2	25.2	16.9
Solids (%)		-	81.8	84.8	89.6
All results in mg/kg unless otherwise noted.					
mg/kg	Exceeds NJDEP Non-Residential Soil Remediation Standard				
J	milligrams per kilogram				
NS	Estimated Value				
ND	Not Sampled				
NA	Not Detected				
( )	Not Analyzed				
B	Method Detection Limit				
**	Compound Found in Blank				
a b	Health based standard defaults to soil saturation limit				
	Result is from 2nd run				



Table 4-1

Hess Corporation - Former Port Reading Complex (HC-PR) - 750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Analytical Results - AOC 23 - Storm Water Transfer Pump; Storm Water Corrugated Plate Separator; Storm Water Diversion Manhole

Client Sample ID:		NJ Non-Residential Direct Contact Soil	WWTS-SB-1 (12.5-13.0)	WWTS-SB-2 (3.0-3.5)	WWTS-SB-3 (4.0-4.5)	WWTS-SB-4 (8.5-9.0)	WWTS-SB-5 (8.5-9.0)
Lab Sample ID:			JB64101-5	JB64101-6	JB64334-1	JB64334-2	JB64334-3
Date Sampled:			4/8/2014	4/8/2014	4/9/2014	4/9/2014	4/9/2014
Sample Depth:			(12.5-13.0)	(3.0-3.5)	(4.0-4.5)	(8.5-9.0)	(8.5-9.0)
Matrix:			Soil	Soil	Soil	Soil	Soil
<b>Volatile Organic Compounds</b>							
Acetone	mg/kg	-	ND	ND	0.0233	ND	0.0316
Benzene	mg/kg	5	0.0211 J	ND	ND	ND	ND
2-Butanone	mg/kg	44000	ND	ND	ND	ND	0.0065 J
Carbon Disulfide	mg/kg	110000	ND	ND	0.0014 J	0.0345 J	0.0022 J
Chlorobenzene	mg/kg	7400	ND	ND	0.00022 J	0.056 J	0.00069 J
Cyclohexane	mg/kg	-	0.0379 J	0.0475 J	0.00060 J	0.0174 J	ND
1,2 Dichlorobenzene	mg/kg	59000	ND	ND	ND	0.0637 J	0.0008 J
1,4 Dichlorobenzene	mg/kg	13	ND	ND	ND	ND	ND
Ethylbenzene	mg/kg	110000	0.176	0.0567 J	ND	0.0353	ND
Isopropylbenzene	mg/kg	-	0.401	0.162 J	0.00027 J	1.26	0.0014 J
Methyl acetate	mg/kg	-	ND	ND	ND	ND	ND
Methylcyclohexane	mg/kg	-	0.126	0.275 J	ND	0.098 J	0.00067 J
Methyl Tertiary Butyl Ether	mg/kg	320	ND	ND	0.0015	ND	0.0037
Methylene chloride	mg/kg	97	ND	ND	ND	ND	ND
tertiary Butyl alcohol (TBA)	mg/kg	11000	ND	ND	ND	ND	0.0165 J
Toluene	mg/kg	91000	0.015 J	ND	ND	ND	ND
Total Xylene	mg/kg	170000	0.200	0.102	ND	0.017 J	ND
Total Volatile TICs	mg/kg	-	15.46 (15) J	10.35 (15) J	0.1026 (10) J	43.200 (15) J	ND
<b>Semi-Volatile Organic Compounds</b>							
Acenaphthene	mg/kg	37000	1.67	0.714	0.612	2.5	0.365
Acenaphthylene	mg/kg	300000	ND	ND	ND	ND	ND
Anthracene	mg/kg	30000	1.03	0.355	0.294	2.13	0.215
Benzo(a)anthracene	mg/kg	2	0.791	0.307	0.255	1.57	0.308
Benzo(a)pyrene	mg/kg	0.2	0.556	0.207	0.173	1.08	0.243
Benzo(b)fluoranthene	mg/kg	2	0.362	0.131	0.136	0.616	0.112
Benzo(g,h,i)perylene	mg/kg	30000	0.194	0.0747	0.0761	0.378	0.100
Benzo(k)fluoranthene	mg/kg	23	0.0754	0.0283 J	0.0449	0.189	0.0267 J
1,1'-Biphenyl	mg/kg	34000	0.166	ND	ND	ND	ND
Carbazole	mg/kg	96	0.124	0.0522 J	ND	ND	ND
Chrysene	mg/kg	230	0.960	0.410	0.348	1.86	0.579
Dibenz(a,h)anthracene	mg/kg	0.2	0.0609	0.0252 J	0.0280 J	0.140	0.0513
Dibenzofuran	mg/kg	-	0.698	0.241	0.159	0.325	ND
Diethyl phthalate	mg/kg	550000	ND	ND	ND	ND	ND
Di-n-butyl phthalate	mg/kg	68000	ND	ND	ND	ND	ND
Di-n-octyl phthalate	mg/kg	27000	ND	ND	ND	ND	ND
bis(2-Ethylhexyl)phthalate	mg/kg	140	0.0553 J	0.204	0.078	0.0471 J	0.399
Fluoranthene	mg/kg	24000	1.19	0.481	0.590	2.18	0.203
Fluorene	mg/kg	24000	1.74	ND	0.304	ND	0.469
Indeno (1,2,3-cd) pyrene	mg/kg	2	0.120	0.0404	0.0456	0.220	0.0396
2-Methylnaphthalene	mg/kg	2400	2.92	0.934	ND	ND	ND
Naphthalene	mg/kg	17	1.67	0.985	ND	0.067	ND
N-Nitrosodiphenylamine	mg/kg	390	ND	ND	ND	ND	ND
Phenanthrene	mg/kg	300000	5.910 <sup>b</sup>	1.90	0.168	0.391	0.174
Pyrene	mg/kg	18000	2.13	0.902	1.030	5.240 <sup>b</sup>	0.695
Total Semi-Volatile TICs	mg/kg	-	22.860 (21) J	11.490 (16) J	13.620 (14) J	28.410 (25) J	31.210 (20) J
<b>Metals</b>							
Aluminum	mg/kg	-	27,800	17,500	8,360	9,580	31,600
Antimony	mg/kg	450	<5.1 <sup>a</sup>	<2.2	<2.3	<2.3	9.7 <sup>a</sup>
Arsenic	mg/kg	19 <sup>a</sup>	57.7	25.0	15.7	6.1	73.1 <sup>a</sup>
Barium	mg/kg	59000	554	233	119	60.3	622
Beryllium	mg/kg	140	2.3	1.3	0.75	0.53	3.1
Cadmium	mg/kg	78	<1.3 <sup>a</sup>	<0.56	<0.58	<0.57	<1.3 <sup>a</sup>
Calcium	mg/kg	-	9,920	4,460	2,460	1,650	12,000
Chromium	mg/kg	-	53.5 <sup>a</sup>	34.6	29.5	11.3	76.9 <sup>a</sup>
Cobalt	mg/kg	590	11.6	8.7	<5.8	<5.7	13.8
Copper	mg/kg	45000	37.7 <sup>a</sup>	23.5	20.7	10.6	70.9 <sup>a</sup>
Iron	mg/kg	-	65,600	39,100	20,800	13,200	84,200
Lead	mg/kg	800	70.5 <sup>a</sup>	36.0	44.0	16.4	506 <sup>a</sup>
Magnesium	mg/kg	-	3,950	1,720	1,160	940	4,690
Manganese	mg/kg	5900	135 <sup>a</sup>	115	67.8	60.5	195 <sup>a</sup>
Mercury	mg/kg	65	0.11	0.048	0.14	<0.037	0.14
Nickel	mg/kg	23000	41.5	22.7	19.6	9.2	72.2 <sup>a</sup>
Potassium	mg/kg	-	2,390	1,180	<1,200	<1,100	2,830
Selenium	mg/kg	5700	<5.1	3.5	<2.3	<2.3	<5.1 <sup>a</sup>
Silver	mg/kg	5700	<1.3 <sup>a</sup>	2.0	<0.58	<0.57	<1.3 <sup>a</sup>
Sodium	mg/kg	-	1,610	<1,100	<1,200	<1,100	1,810
Thallium	mg/kg	79	<2.6 <sup>a</sup>	<1.1	<1.2	<1.1	<2.5 <sup>a</sup>
Vanadium	mg/kg	1100	180	100	84.1	35.2	280 <sup>a</sup>
Zinc	mg/kg	110000	65.1	37.1	34.2	16.3	96.3 <sup>a</sup>
<b>Miscellaneous</b>							
Ammonia		-	35.7	23.4	20.9	6.0	21.0
Solids (%)		-	79.3	85.0	83.0	84.9	79.9
All results in mg/kg unless otherwise noted.							
				milligrams per kilogram	mg/kg		
				Estimated Value	J		
Exceeds NJDEP Non-Residential Soil Remediation Standard				Not Sampled	NS		
				Not Detected	ND		
				Not Analyzed	NA		
				Method Detection Limit	( )		
				Compound Found in Blank	B		
Health based standard defaults to soil saturation limit				**			
Result is from 2nd run				a b			

Table 4-1  
Former Hess Terminal - 750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Sample Results - AOC 24 - Sluice Pit

Client Sample ID:		NJ Non-Residential Direct Contact Soil	ABSP-SS-1	ABSP-SS-1	ABSP-SS-1	ABSP-SS-1	ABSP-SS-2
Lab Sample ID:			JB99834-1	JB99834-1R	JB99834-1U	JB99834-1UR	JB99834-2
Date Sampled:			7/22/2015	7/22/2015	7/22/2015	7/22/2015	7/22/2015
Sample Depth:			5.5-6.0 ft	5.5-6.0 ft	5.5-6.0 ft	5.5-6.0 ft	5.5-6.0 ft
Matrix:			Soil	Soil	Soil	Soil	Soil
GC/MS Volatiles (SW846 8260C)							
Acetone	mg/kg	NA	-	0.0176	-	-	-
Benzene	mg/kg	5	-	0.00046 J	-	-	-
Bromochloromethane	mg/kg	-	-	ND (0.00040)	-	-	-
Bromodichloromethane	mg/kg	3	-	ND (0.00020)	-	-	-
Bromoform	mg/kg	280	-	ND (0.00030)	-	-	-
Bromomethane	mg/kg	59	-	ND (0.00047)	-	-	-
2-Butanone (MEK)	mg/kg	44000	-	ND (0.0025)	-	-	-
Carbon disulfide	mg/kg	110000	-	0.00067 J	-	-	-
Carbon tetrachloride	mg/kg	2	-	ND (0.00030)	-	-	-
Chlorobenzene	mg/kg	7400	-	ND (0.00020)	-	-	-
Chloroethane	mg/kg	1100	-	ND (0.00062)	-	-	-
2-Chloroethyl vinyl ether	mg/kg	-	-	-	-	-	-
Chloroform	mg/kg	2	-	ND (0.00019)	-	-	-
Chloromethane	mg/kg	12	-	ND (0.00034)	-	-	-
Cyclohexane	mg/kg	-	-	ND (0.00041)	-	-	-
1,2-Dibromo-3-chloropropane	mg/kg	0.2	-	ND (0.00070)	-	-	-
Dibromochloromethane	mg/kg	8	-	ND (0.00026)	-	-	-
1,2-Dibromoethane	mg/kg	0.04	-	ND (0.00017)	-	-	-
1,2-Dichlorobenzene	mg/kg	59000	-	ND (0.00016)	-	-	-
1,3-Dichlorobenzene	mg/kg	59000	-	ND (0.00020)	-	-	-
1,4-Dichlorobenzene	mg/kg	13	-	ND (0.00029)	-	-	-
Dichlorodifluoromethane	mg/kg	230000	-	ND (0.00046)	-	-	-
1,1-Dichloroethane	mg/kg	24	-	ND (0.00018)	-	-	-
1,2-Dichloroethane	mg/kg	3	-	ND (0.00017)	-	-	-
1,1-Dichloroethene	mg/kg	150	-	ND (0.00076)	-	-	-
cis-1,2-Dichloroethene	mg/kg	560	-	ND (0.0010)	-	-	-
trans-1,2-Dichloroethene	mg/kg	720	-	ND (0.00076)	-	-	-
1,2-Dichloropropane	mg/kg	5	-	ND (0.00031)	-	-	-
cis-1,3-Dichloropropene	mg/kg	7	-	ND (0.00015)	-	-	-
trans-1,3-Dichloropropene	mg/kg	7	-	ND (0.00023)	-	-	-
Ethylbenzene	mg/kg	110000	-	ND (0.00021)	-	-	-
Freon 113	mg/kg	-	-	ND (0.00057)	-	-	-
2-Hexanone	mg/kg	-	-	ND (0.0017)	-	-	-
Isopropylbenzene	mg/kg	-	-	ND (0.00014)	-	-	-
Methyl Acetate	mg/kg	NA	-	ND (0.0011)	-	-	-
Methylcyclohexane	mg/kg	-	-	ND (0.00029)	-	-	-
Methyl Tert Butyl Ether	mg/kg	320	-	ND (0.00020)	-	-	-
4-Methyl-2-pentanone(MIBK)	mg/kg	-	-	ND (0.00059)	-	-	-
Methylene chloride	mg/kg	97	-	ND (0.0013)	-	-	-
Styrene	mg/kg	260	-	ND (0.00023)	-	-	-
Tert Butyl Alcohol	mg/kg	11000	-	ND (0.0034)	-	-	-
1,1,2,2-Tetrachloroethane	mg/kg	3	-	ND (0.00022)	-	-	-
Tetrachloroethene	mg/kg	5	-	ND (0.00039)	-	-	-
Toluene	mg/kg	91000	-	0.0024	-	-	-
1,2,3-Trichlorobenzene	mg/kg	-	-	ND (0.00023)	-	-	-
1,2,4-Trichlorobenzene	mg/kg	820	-	ND (0.00022)	-	-	-
1,1,1-Trichloroethane	mg/kg	4200	-	ND (0.00019)	-	-	-
1,1,2-Trichloroethane	mg/kg	6	-	ND (0.00019)	-	-	-
Trichloroethene	mg/kg	20	-	ND (0.00019)	-	-	-
Trichlorofluoromethane	mg/kg	340000	-	ND (0.00032)	-	-	-
Vinyl chloride	mg/kg	2	-	ND (0.00025)	-	-	-
m,p-Xylene	mg/kg	170000	-	ND (0.00045)	-	-	-
o-Xylene	mg/kg	170000	-	ND (0.00035)	-	-	-
Xylene (total)	mg/kg	170000	-	ND (0.00035)	-	-	-
GC/MS Volatile TIC							
Total TIC, Volatile	mg/kg	-	-	0.0067 J	-	-	-
Total Alkanes	mg/kg	-	-	0	-	-	-

Table 4-1  
Former Hess Terminal - 750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Sample Results - AOC 24 - Sluice Pit

Client Sample ID:		NJ Non-Residential Direct Contact Soil	ABSP-SS-1	ABSP-SS-1	ABSP-SS-1	ABSP-SS-1	ABSP-SS-2
Lab Sample ID:			JB99834-1	JB99834-1R	JB99834-1U	JB99834-1UR	JB99834-2
Date Sampled:			7/22/2015	7/22/2015	7/22/2015	7/22/2015	7/22/2015
Sample Depth:			5.5-6.0 ft	5.5-6.0 ft	5.5-6.0 ft	5.5-6.0 ft	5.5-6.0 ft
Matrix:			Soil	Soil	Soil	Soil	Soil
<b>GC/MS Semi-volatiles (SW846 8270D)</b>							
Acenaphthene	mg/kg	37000	-	0.222	-	-	-
Acenaphthylene	mg/kg	300000	-	ND (0.042)	-	-	-
2-Chlorophenol	mg/kg	2200	-	ND (0.085)	-	-	-
Anthracene	mg/kg	30000	-	0.411	-	-	-
4-Chloro-3-methyl phenol	mg/kg	-	-	ND (0.21)	-	-	-
Benzo(a)anthracene	mg/kg	2	-	0.19	-	-	-
Benzo(a)pyrene	mg/kg	0.2	-	0.0942	-	-	-
2,4-Dichlorophenol	mg/kg	2100	-	ND (0.21)	-	-	-
Benzo(b)fluoranthene	mg/kg	2	-	0.112	-	-	-
2,4-Dimethylphenol	mg/kg	14000	-	ND (0.21)	-	-	-
Benzo(g,h,i)perylene	mg/kg	30000	-	0.0862	-	-	-
2,4-Dinitrophenol	mg/kg	1400	-	ND (0.21)	-	-	-
Benzo(k)fluoranthene	mg/kg	23	-	0.0346 J	-	-	-
Chrysene	mg/kg	230	-	0.211	-	-	-
4,6-Dinitro-o-cresol	mg/kg	68	-	ND (0.21)	-	-	-
Dibenzo(a,h)anthracene	mg/kg	0.2	-	ND (0.042)	-	-	-
Fluoranthene	mg/kg	24000	-	0.894	-	-	-
2-Methylphenol	mg/kg	3400	-	ND (0.085)	-	-	-
Fluorene	mg/kg	24000	-	0.578	-	-	-
3&4-Methylphenol	mg/kg	-	-	ND (0.085)	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	2	-	0.0576	-	-	-
2-Nitrophenol	mg/kg	-	-	ND (0.21)	-	-	-
4-Nitrophenol	mg/kg	-	-	ND (0.42)	-	-	-
Naphthalene	mg/kg	17	-	11.3	-	-	-
Phenanthrene	mg/kg	300000	-	1.77	-	-	-
Pentachlorophenol	mg/kg	10	-	ND (0.21)	-	-	-
Phenol	mg/kg	210000	-	ND (0.085)	-	-	-
Pyrene	mg/kg	18000	-	0.585	-	-	-
2,3,4,6-Tetrachlorophenol	mg/kg	-	-	ND (0.21)	-	-	-
2,4,5-Trichlorophenol	mg/kg	68000	-	ND (0.21)	-	-	-
2,4,6-Trichlorophenol	mg/kg	74	-	ND (0.21)	-	-	-
Acetophenone	mg/kg	5	-	ND (0.21)	-	-	-
Atrazine	mg/kg	2400	-	ND (0.085)	-	-	-
4-Bromophenyl phenyl ether	mg/kg	-	-	ND (0.085)	-	-	-
Butyl benzyl phthalate	mg/kg	14000	-	ND (0.085)	-	-	-
1,1'-Biphenyl	mg/kg	34000	-	ND (0.085)	-	-	-
Benzaldehyde	mg/kg	68000	-	ND (0.21)	-	-	-
2-Chloronaphthalene	mg/kg	-	-	ND (0.085)	-	-	-
4-Chloroaniline	mg/kg	-	-	ND (0.21)	-	-	-
Carbazole	mg/kg	96	-	0.146	-	-	-
Caprolactam	mg/kg	340000	-	ND (0.085)	-	-	-
bis(2-Chloroethoxy)methane	mg/kg	-	-	ND (0.085)	-	-	-
bis(2-Chloroethyl)ether	mg/kg	2	-	ND (0.085)	-	-	-
bis(2-Chloroisopropyl)ether	mg/kg	67	-	ND (0.085)	-	-	-
4-Chlorophenyl phenyl ether	mg/kg	-	-	ND (0.085)	-	-	-
2,4-Dinitrotoluene	mg/kg	3	-	ND (0.042)	-	-	-
2,6-Dinitrotoluene	mg/kg	3	-	ND (0.042)	-	-	-
3,3'-Dichlorobenzidine	mg/kg	4	-	ND (0.085)	-	-	-
1,4-Dioxane	mg/kg	-	-	ND (0.042)	-	-	-
Dibenzofuran	mg/kg	-	-	ND (0.085)	-	-	-
Di-n-butyl phthalate	mg/kg	68000	-	0.109	-	-	-
Di-n-octyl phthalate	mg/kg	27000	-	ND (0.085)	-	-	-
Diethyl phthalate	mg/kg	550000	-	ND (0.085)	-	-	-
Dimethyl phthalate	mg/kg	-	-	ND (0.085)	-	-	-
bis(2-Ethylhexyl)phthalate	mg/kg	140	-	0.183	-	-	-
Hexachlorobenzene	mg/kg	1	-	ND (0.085)	-	-	-
Hexachlorobutadiene	mg/kg	25	-	ND (0.042)	-	-	-
Hexachlorocyclopentadiene	mg/kg	110	-	ND (0.42)	-	-	-
Hexachloroethane	mg/kg	140	-	ND (0.21)	-	-	-
Isophorone	mg/kg	2000	-	ND (0.085)	-	-	-
2-Methylnaphthalene	mg/kg	2400	-	24.4	-	-	-
2-Nitroaniline	mg/kg	23000	-	ND (0.21)	-	-	-
3-Nitroaniline	mg/kg	-	-	ND (0.21)	-	-	-
4-Nitroaniline	mg/kg	-	-	ND (0.21)	-	-	-
Nitrobenzene	mg/kg	340	-	ND (0.085)	-	-	-
N-Nitroso-di-n-propylamine	mg/kg	0.3	-	ND (0.085)	-	-	-
N-Nitrosodiphenylamine	mg/kg	390	-	ND (0.21)	-	-	-
1,2,4,5-Tetrachlorobenzene	mg/kg	-	-	ND (0.21)	-	-	-



Table 4-1  
Former Hess Terminal - 750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Sample Results - AOC 24 - Sluice Pit

Client Sample ID:		NJ Non-Residential Direct Contact Soil	ABSP-SS-1	ABSP-SS-1	ABSP-SS-1	ABSP-SS-1	ABSP-SS-2
Lab Sample ID:			JB99834-1	JB99834-1R	JB99834-1U	JB99834-1UR	JB99834-2
Date Sampled:			7/22/2015	7/22/2015	7/22/2015	7/22/2015	7/22/2015
Sample Depth:			5.5-6.0 ft	5.5-6.0 ft	5.5-6.0 ft	5.5-6.0 ft	5.5-6.0 ft
Matrix:			Soil	Soil	Soil	Soil	Soil
GC/MS Semi-volatile TIC							
Total TIC, Semi-Volatile	mg/kg	-	-	39.7 J	-	-	-
Total Alkanes	mg/kg	-	-	14.8 J	-	-	-
GC Semi-volatiles (NJDEP EPH)							
EPH (C9-C28)	mg/kg	-	28.8	-	-	-	28.2
EPH (>C28-C40)	mg/kg	-	39.4	-	-	-	21.7
Total EPH (C9-C40)	mg/kg	-	68.2	-	-	-	49.9
GC Semi-volatiles (SW846 8082A)							
Aroclor 1016	mg/kg	1	-	ND (0.014)	-	-	-
Aroclor 1221	mg/kg	1	-	ND (0.025)	-	-	-
Aroclor 1232	mg/kg	1	-	ND (0.014)	-	-	-
Aroclor 1242	mg/kg	1	-	ND (0.019)	-	-	-
Aroclor 1248	mg/kg	1	-	ND (0.013)	-	-	-
Aroclor 1254	mg/kg	1	-	0.0789	-	-	-
Aroclor 1260	mg/kg	1	-	ND (0.018)	-	-	-
Aroclor 1268	mg/kg	1	-	ND (0.013)	-	-	-
Aroclor 1262	mg/kg	1	-	ND (0.012)	-	-	-
Metals Analysis							
Aluminum	mg/kg	NA	-	5220	-	-	-
Antimony	mg/kg	450	-	<2.5	-	-	-
Arsenic	mg/kg	19	-	7.4	-	-	-
Barium	mg/kg	59000	-	41.4	-	-	-
Beryllium	mg/kg	140	-	0.66	-	-	-
Cadmium	mg/kg	78	-	<0.64	-	-	-
Calcium	mg/kg	-	-	1010	-	-	-
Chromium	mg/kg	-	-	21.8	-	-	-
Chromium, Hexavalent	mg/kg	-	-	-	ND (0.52)	ND (0.52)	-
Cobalt	mg/kg	590	-	<6.4	-	-	-
Copper	mg/kg	45000	-	41.6	-	-	-
Iron	mg/kg	-	-	19600	-	-	-
Lead	mg/kg	800	-	35.4	-	-	-
Magnesium	mg/kg	-	-	1530	-	-	-
Manganese	mg/kg	5900	-	114	-	-	-
Mercury	mg/kg	65	-	0.032	-	-	-
Nickel	mg/kg	23000	-	17	-	-	-
Potassium	mg/kg	-	-	<1300	-	-	-
Selenium	mg/kg	5700	-	<2.5	-	-	-
Silver	mg/kg	5700	-	<0.64	-	-	-
Sodium	mg/kg	-	-	<1300	-	-	-
Thallium	mg/kg	79	-	<1.3	-	-	-
Vanadium	mg/kg	1100	-	32.6	-	-	-
Zinc	mg/kg	110000	-	121	-	-	-
General Chemistry							
Solids, Percent	%	-	76.4	-	-	-	75.5
Iron, Ferrous	%	-	-	-	-	1.2 <sup>b</sup>	-
Redox Potential Vs H2	mv	-	-	-	212 <sup>c</sup>	-	-
Sulfide Screen		-	-	-	-	NEGATIVE <sup>d</sup>	-
Total Organic Carbon	mg/kg	-	-	-	-	2190 <sup>c</sup>	-
pH	su	-	-	-	8.33	-	-

<sup>a</sup> Elevated detection limit due to dilution required for high interfering element.

<sup>b</sup> The ferrous iron test was analyzed after completion of Cr6 testing (outside of normal hold times for this parameter) in order to provide more information about the possible impact of the sample matrix on Cr6 recoveries.

<sup>c</sup> Analysis done out of holding time.

<sup>d</sup> The sulfide screen test was analyzed after completion of Cr6 testing (outside of normal hold times for this parameter) in order to provide more information about the possible impact of the sample matrix on Cr6 recoveries.

All results in mg/kg unless otherwise noted.

milligrams per kilogram mg/kg

Estimated Value J

Not Sampled NS

Not Detected ND

Not Analyzed NA

Method Detection Limit ( )

Compound Found in Blank B

Health based standard defaults to soil saturation limit \*\*

Exceeds NJDEP Non-Residential Soil Remediation Standard

Table 4-1  
Former Hess Terminal - 750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Sample Results at AOC 25 - X-1950A and X-1950B, AOC-40 - Fresh Acid Unloading Area, AOC-92 - TK-701A and TK-701B

Client Sample ID:		NJ Non-Residential Direct Contact Soil	AU-SS-1	AU-SS-1	AU-SS-1	AU-SS-1	AU-SS-1	AU-SS-1	AU-SS-1A	AU-SS-2A	AU-SS-2A	AU-SS-2	AU-SS-2	AU-SS-2	AU-SS-2	AU-SS-2	AU-SS-3	AU-SS-3	AU-SS-3	AU-SS-4	AU-SS-4	AU-SS-4	AU-SS-5	AU-SS-5	AU-SS-5	AU-SS-5	AU-SS-5A	AU-SS-6	AU-SS-6	AU-SS-6	AU-SS-6	AU-SS-7	AU-SS-7	AU-SS-7	AV-SS-7R	AU-SS-8	AU-SS-8A	AV-SS-8R			
Lab Sample ID:			JB99093-1	JB99093-1R	JB99093-1RR	JB99093-1U	JB99093-1UR	JC2396-3	JB99093-2	JB98902-6	JB98902-6T	JB98902-6	JB98902-6R	JB98902-6U	JB98902-6UT	JB98902-7	JB98902-7U	JB98902-7UT	JB98902-8	JB98902-8U	JB98902-8UT	JB98902-9	JB98902-9U	JB98902-9UT	JB98902-10	JB98902-11	JB98902-11R	JB98902-11U	JB98902-11UT	JB99093-3	JB99093-3T	JB99093-3TU	JB99944-1	JB99093-5	JB99093-5A	JB99944-2					
Date Sampled:			7/13/2015	7/13/2015	7/13/2015	7/13/2015	7/13/2015	8/26/2015	7/13/2015	7/10/2015	7/10/2015	7/10/2015	7/10/2015	7/10/2015	7/10/2015	7/10/2015	7/10/2015	7/10/2015	7/10/2015	7/10/2015	7/10/2015	7/10/2015	7/10/2015	7/10/2015	7/10/2015	7/10/2015	7/10/2015	7/13/2015	7/13/2015	7/13/2015	7/23/2015	7/13/2015	7/13/2015	7/23/2015	7/23/2015	7/23/2015	7/23/2015				
Matrix:			Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil		
Depth		0.5-1.0 ft	0.5-1.0 ft	0.5-1.0 ft	0.5-1.0 ft	0.5-1.0 ft	0.5-1.0 ft	7.5-8.0 ft	7.5-8.0 ft	7.5-8.0 ft	1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft	6.5-7.0 ft	6.5-7.0 ft	6.5-7.0 ft	6.5-7.0 ft	6.5-7.0 ft	6.5-7.0 ft	3.5-4.0 ft	3.5-4.0 ft	3.5-4.0 ft	7.5-8.0 ft	0.5-1.0 ft	0.5-1.0 ft	0.5-1.0 ft	0.5-1.0 ft	1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft	7.5-8.0 ft	1.5-2.0 ft	1.5-2.0 ft			
GC/MS Volatiles (SW846 8260C)																																									
Acetone	mg/K	NA	ND (0.13)	-	-	-	-	-	0.0244	0.0142	-	ND (0.14)	-	-	-	-	0.0062 J	-	-	-	0.0106	-	-	0.0079 J	-	-	-	0.0043 J	ND (0.12)	-	-	-	-	ND (0.12)	-	-	-	0.0633	ND (0.14)	0.192 J	0.279 J
Benzene	mg/K	5	1.29	-	-	-	-	-	0.00049 J	ND (0.00015)	-	0.0425	-	-	-	-	ND (0.00013)	-	-	-	ND (0.00012)	-	-	ND (0.0014)	-	-	-	ND (0.00014)	ND (0.0069)	-	-	-	-	ND (0.0074)	-	-	-	0.002	ND (0.0084)	0.49	0.0495
Bromochloromethane	mg/K	-	ND (0.018)	-	-	-	-	-	ND (0.00033)	ND (0.00035)	-	ND (0.019)	-	-	-	-	ND (0.00029)	-	-	-	ND (0.00028)	-	-	ND (0.0014)	-	-	-	ND (0.00032)	ND (0.016)	-	-	-	-	ND (0.017)	-	-	-	ND (0.0033)	ND (0.020)	ND (0.016)	ND (0.31)
Bromodichloromethane	mg/K	3	ND (0.0092)	-	-	-	-	-	ND (0.00017)	ND (0.00017)	-	ND (0.0094)	-	-	-	-	ND (0.00015)	-	-	-	ND (0.00014)	-	-	ND (0.0017)	-	-	-	ND (0.00016)	ND (0.0081)	-	-	-	-	ND (0.0087)	-	-	-	ND (0.0017)	ND (0.0099)	ND (0.0081)	ND (0.13)
Bromoform	mg/K	280	ND (0.014)	-	-	-	-	-	ND (0.00025)	ND (0.00026)	-	ND (0.014)	-	-	-	-	ND (0.00025)	-	-	-	ND (0.00022)	-	-	ND (0.0025)	-	-	-	ND (0.00024)	ND (0.012)	-	-	-	-	ND (0.013)	-	-	-	ND (0.0017)	ND (0.015)	ND (0.012)	ND (0.31)
Bromomethane	mg/K	59	ND (0.021)	-	-	-	-	-	ND (0.00039)	ND (0.00041)	-	ND (0.022)	-	-	-	-	ND (0.0022)	-	-	-	ND (0.00033)	-	-	ND (0.0025)	-	-	-	ND (0.00037)	ND (0.019)	-	-	-	-	ND (0.020)	-	-	-	ND (0.0025)	ND (0.023)	ND (0.019)	ND (0.31)
2-Butanone (MEK)	mg/K	44000	ND (0.11)	-	-	-	-	-	ND (0.0020)	ND (0.0021)	-	ND (0.12)	-	-	-	-	ND (0.0018)	-	-	-	ND (0.0018)	-	-	0.0023 J	-	-	-	ND (0.0020)	ND (0.099)	-	-	-	-	ND (0.11)	-	-	-	0.0305	ND (0.12)	ND (0.099)	ND (0.63)
Carbon disulfide	mg/K	110000	ND (0.013)	-	-	-	-	-	0.00061 J	0.00042 J	-	0.0294 J	-	-	-	-	ND (0.0024)	-	-	-	ND (0.00021)	-	-	ND (0.0024)	-	-	-	ND (0.00023)	ND (0.012)	-	-	-	-	ND (0.013)	-	-	-	ND (0.0024)	ND (0.015)	ND (0.012)	ND (0.13)
Carbon tetrachloride	mg/K	2	ND (0.014)	-	-	-	-	-	ND (0.00024)	ND (0.00026)	-	ND (0.014)	-	-	-	-	ND (0.0022)	-	-	-	ND (0.00021)	-	-	ND (0.0024)	-	-	-	ND (0.00024)	ND (0.012)	-	-	-	-	ND (0.013)	-	-	-	ND (0.0024)	ND (0.015)	ND (0.012)	ND (0.13)
Chlorobenzene	mg/K	7400	ND (0.0092)	-	-	-	-	-	ND (0.00016)	0.00078 J	-	ND (0.0094)	-	-	-	-	ND (0.0015)	-	-	-	ND (0.00014)	-	-	ND (0.0016)	-	-	-	ND (0.00016)	ND (0.0081)	-	-	-	-	0.0013 J	ND (0.0098)	ND (0.0081)	ND (0.13)				
Chloroethane	mg/K	1100	ND (0.028)	-	-	-	-	-	ND (0.00051)	ND (0.00054)	-	ND (0.029)	-	-	-	-	ND (0.0045)	-	-	-	ND (0.00044)	-	-	ND (0.0051)	-	-	-	ND (0.00049)	ND (0.025)	-	-	-	-	ND (0.027)	-	-	-	ND (0.0051)	ND (0.031)	ND (0.025)	ND (0.31)
Chloroform	mg/K	2	ND (0.0088)	-	-	-	-	-	ND (0.00016)	ND (0.00017)	-	ND (0.0090)	-	-	-	-	ND (0.0014)	-	-	-	ND (0.00014)	-	-	ND (0.0016)	-	-	-	ND (0.00015)	ND (0.0077)	-	-	-	-	ND (0.0083)	-	-	-	ND (0.0016)	ND (0.0095)	ND (0.0078)	ND (0.13)
Chloromethane	mg/K	12	ND (0.015)	-	-	-	-	-	ND (0.00028)	ND (0.00029)	-	ND (0.016)	-	-	-	-	ND (0.0025)	-	-	-	ND (0.00024)	-	-	ND (0.0028)	-	-	-	ND (0.00027)	ND (0.014)	-	-	-	-	ND (0.015)	-	-	-	ND (0.0028)	ND (0.017)	ND (0.014)	ND (0.31)
Cyclohexane	mg/K	-	0.921	-	-	-	-	-	0.0042	ND (0.00035)	-	0.108 J	-	-	-	-	ND (0.0030)	-	-	-	ND (0.00029)	-	-	ND (0.0034)	-	-	-	ND (0.00032)	ND (0.016)	-	-	-	-	ND (0.018)	-	-	-	ND (0.0018)	ND (0.020)	0.253	0.375
1,2-Dibromo-3-chloropropane	mg/K	0.2	ND (0.032)	-	-	-	-	-	ND (0.00058)	ND (0.00061)	-	ND (0.033)	-	-	-	-	ND (0.0051)	-	-	-	ND (0.00050)	-	-	ND (0.0058)	-	-	-	ND (0.00056)	ND (0.028)	-	-	-	-	ND (0.030)	-	-	-	ND (0.0058)	ND (0.032)	ND (0.028)	ND (0.13)
Dibromochloromethane	mg/K	8	ND (0.012)	-	-	-	-	-	ND (0.00022)	ND (0.00023)	-	ND (0.012)	-	-	-	-	ND (0.0019)	-	-	-	ND (0.00019)	-	-	ND (0.0022)	-	-	-	ND (0.00021)	ND (0.011)	-	-	-	-	ND (0.011)	-	-	-	ND (0.0022)	ND (0.013)	ND (0.011)	ND (0.13)
1,2-Dibromoethane	mg/K	0.04	ND (0.0077)	-	-	-	-	-	ND (0.00014)	ND (0.00015)	-	ND (0.0079)	-	-	-	-	ND (0.0012)	-	-	-	ND (0.00012)	-	-	ND (0.0014)	-	-	-	ND (0.00013)	ND (0.0068)	-	-	-	-	ND (0.0073)	-	-	-	ND (0.0014)	ND (0.0083)	ND (0.0068)	ND (0.63)
1,2-Dichlorobenzene	mg/K	59000	ND (0.0072)	-	-	-	-	-	ND (0.00013)	0.00028 J	-	0.0228 J	-	-	-	-	ND (0.0011)	-	-	-	ND (0.00011)	-	-	ND (0.0013)	-	-	-	ND (0.00013)	ND (0.0063)	-	-	-	-	ND (0.0068)	-	-	-	ND (0.0014)	ND (0.0077)	ND (0.0063)	ND (0.63)
1,3-Dichlorobenzene	mg/K	59000	ND (0.0093)	-	-	-	-	-	ND (0.00017)	ND (0.00018)	-	0.0128 J	-	-	-	-	ND (0.0015)	-	-	-	ND (0.00014)	-	-	ND (0.0017)	-	-	-	ND (0.00016)	ND (0.0082)	-	-	-	-	ND (0.0087)	-	-	-	ND (0.0017)	ND (0.010)	ND (0.0082)	ND (0.63)
1,4-Dichlorobenzene	mg/K	13	ND (0.013)	-	-	-	-	-	ND (0.00024)	ND (0.00025)	-	0.0222 J	-	-	-	-	ND (0.0021)	-	-	-	ND (0.00021)	-	-	ND (0.0024)	-	-	-	ND (0.00023)	ND (0.012)	-	-	-	-	ND (0.013)	-	-	-	ND (0.0024)	ND (0.014)	ND (0.012)	ND (0.63)
Dichlorodifluoromethane	mg/K	230000	ND (0.021)	-	-	-	-	-	ND (0.00038)	ND (0.00040)	-	ND (0.022)	-	-	-	-	ND (0.0034)	-	-	-	ND (0.00033)	-	-	ND (0.0038)	-	-	-	ND (0.00037)	ND (0.019)	-	-	-	-	ND (0.020)	-						

Table 4-1  
Former Hess Terminal - 750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Sample Results at AOC 25 - X-1950A and X-1950B, AOC-40 - Fresh Acid Unloading Area, AOC-92 - TK-701A and TK-701B

Client Sample ID:		NJ Non-Residential Direct Contact Soil	AU-SS-1	AU-SS-1	AU-SS-1	AU-SS-1	AU-SS-1	AU-SS-1	AU-SS-1A	AU-SS-2A	AU-SS-2A	AU-SS-2	AU-SS-2	AU-SS-2	AU-SS-2	AU-SS-3	AU-SS-3	AU-SS-3	AU-SS-4	AU-SS-4	AU-SS-4	AU-SS-4	AU-SS-5	AU-SS-5	AU-SS-5	AU-SS-5A	AU-SS-6	AU-SS-6	AU-SS-6	AU-SS-6	AU-SS-7	AU-SS-7	AU-SS-7	AV-SS-7R	AU-SS-8	AU-SS-8A	AV-SS-8R
Lab Sample ID:			JB99093-1	JB99093-1R	JB99093-1RR	JB99093-1U	JB99093-1UR	JC2396-3	JB99093-2	JB99092-5	JB99092-5T	JB99092-6	JB99092-6R	JB99092-6U	JB99092-6UT	JB99092-7	JB99092-7U	JB99092-7UT	JB99092-8	JB99092-8U	JB99092-8UT	JB99092-9	JB99092-9U	JB99092-9UT	JB99092-10	JB99092-11R	JB99092-11U	JB99092-11UT	JB99093-3	JB99093-3T	JB99093-3TU	JB99944-1	JB99093-4	JB99093-5	JB99944-2		
Date Sampled:			7/13/2015	7/13/2015	7/13/2015	7/13/2015	7/13/2015	8/26/2015	7/13/2015	7/10/2015	7/10/2015	7/10/2015	7/10/2015	7/10/2015	7/10/2015	7/10/2015	7/10/2015	7/10/2015	7/10/2015	7/10/2015	7/10/2015	7/10/2015	7/10/2015	7/10/2015	7/10/2015	7/10/2015	7/10/2015	7/10/2015	7/10/2015	7/10/2015	7/13/2015	7/13/2015	7/13/2015	7/23/2015	7/13/2015	7/23/2015	
Matrix:			Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Depth			0.5-1.0 ft	0.5-1.0 ft	0.5-1.0 ft	0.5-1.0 ft	0.5-1.0 ft	0.5-1.0 ft	7.5-8.0 ft	7.5-8.0 ft	7.5-8.0 ft	1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft	6.5-7.0 ft	6.5-7.0 ft	6.5-7.0 ft	6.5-7.0 ft	6.5-7.0 ft	6.5-7.0 ft	6.5-7.0 ft	3.5-4.0 ft	3.5-4.0 ft	3.5-4.0 ft	7.5-8.0 ft	0.5-1.0 ft	0.5-1.0 ft	0.5-1.0 ft	0.5-1.0 ft	1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft	7.5-8.0 ft	1.5-2.0 ft
GC/MS Semi-volatiles (SW846 8270D)																																					
Acenaphthene	mg/K	37000	2.03	-	-	-	-	-	2.08	ND (0.0079)	ND (0.0074)	ND (0.0078)	-	-	-	ND (0.0078)	-	-	ND (0.0078)	-	-	ND (0.0079)	-	-	ND (0.0073)	ND (0.0071)	-	-	-	3.8	-	-	-	5.3	10.7	-	
Acenaphthylene	mg/K	300000	ND (0.0053)	-	-	-	-	-	ND (0.011)	ND (0.0059)	ND (0.0055)	ND (0.0058)	-	-	-	ND (0.0058)	-	-	ND (0.0059)	-	-	ND (0.0059)	-	-	ND (0.0055)	ND (0.0053)	-	-	-	ND (0.011)	-	-	-	ND (0.011)	ND (0.011)	-	
2-Chlorophenol	mg/K	2200	ND (0.032)	-	-	-	-	-	ND (0.066)	ND (0.036)	ND (0.033)	ND (0.035)	-	-	-	ND (0.035)	-	-	ND (0.035)	-	-	ND (0.035)	-	-	ND (0.033)	ND (0.032)	-	-	-	ND (0.065)	-	-	-	ND (0.069)	ND (0.067)	-	
Anthracene	mg/K	30000	ND (0.0079)	-	-	-	-	-	ND (0.016)	ND (0.0088)	ND (0.0082)	0.0289 J	-	-	-	ND (0.0087)	-	-	ND (0.0087)	-	-	ND (0.0088)	-	-	ND (0.0081)	ND (0.0079)	-	-	-	1.38	-	-	-	8.87	3.78	-	
Benzo(a)anthracene	mg/K	2	0.0545	-	-	-	-	-	ND (0.014)	ND (0.0076)	ND (0.0071)	0.0325 J	-	-	-	ND (0.0075)	-	-	ND (0.0075)	-	-	ND (0.0075)	-	-	ND (0.0070)	ND (0.0068)	-	-	-	ND (0.014)	-	-	-	1.21	0.0505 J	-	
4-Chloro-3-methyl phenol	mg/K	-	ND (0.066)	-	-	-	-	-	ND (0.14)	ND (0.073)	ND (0.068)	ND (0.072)	-	-	-	ND (0.072)	-	-	ND (0.073)	-	-	ND (0.073)	-	-	ND (0.068)	ND (0.066)	-	-	-	ND (0.13)	-	-	-	ND (0.14)	ND (0.14)	-	
Benzo(a)pyrene	mg/K	0.2	0.0215 J	-	-	-	-	-	ND (0.018)	ND (0.0094)	ND (0.0088)	ND (0.0093)	-	-	-	ND (0.0093)	-	-	ND (0.0093)	-	-	ND (0.0094)	-	-	ND (0.0088)	ND (0.0085)	-	-	-	ND (0.017)	-	-	-	ND (0.018)	ND (0.018)	-	
2,4-Dichlorophenol	mg/K	2100	ND (0.065)	-	-	-	-	-	ND (0.14)	ND (0.072)	ND (0.068)	ND (0.072)	-	-	-	ND (0.071)	-	-	ND (0.072)	-	-	ND (0.072)	-	-	ND (0.067)	ND (0.065)	-	-	-	ND (0.13)	-	-	-	ND (0.14)	ND (0.14)	-	
Benzo(b)fluoranthene	mg/K	2	0.0251 J	-	-	-	-	-	ND (0.014)	ND (0.0077)	ND (0.0072)	ND (0.0076)	-	-	-	ND (0.0076)	-	-	ND (0.0076)	-	-	ND (0.0077)	-	-	ND (0.0072)	ND (0.0069)	-	-	-	ND (0.014)	-	-	-	ND (0.015)	ND (0.014)	-	
2,4-Dimethylphenol	mg/K	14000	ND (0.077)	-	-	-	-	-	ND (0.16)	ND (0.085)	ND (0.080)	ND (0.084)	-	-	-	ND (0.084)	-	-	ND (0.085)	-	-	ND (0.085)	-	-	ND (0.079)	ND (0.077)	-	-	-	ND (0.16)	-	-	-	ND (0.16)	ND (0.16)	-	
2,4-Dinitrophenol	mg/K	1400	ND (0.15)	-	-	-	-	-	ND (0.31)	ND (0.16)	ND (0.15)	ND (0.16)	-	-	-	ND (0.16)	-	-	ND (0.16)	-	-	ND (0.16)	-	-	ND (0.15)	ND (0.15)	-	-	-	ND (0.30)	-	-	-	ND (0.32)	ND (0.31)	-	
Benzo(g,h,i)perylene	mg/K	30000	0.0144 J	-	-	-	-	-	ND (0.024)	ND (0.013)	ND (0.012)	ND (0.013)	-	-	-	ND (0.013)	-	-	ND (0.013)	-	-	ND (0.013)	-	-	ND (0.012)	ND (0.012)	-	-	-	ND (0.024)	-	-	-	ND (0.025)	ND (0.024)	-	
Benzo(k)fluoranthene	mg/K	23	ND (0.011)	-	-	-	-	-	ND (0.023)	ND (0.012)	ND (0.012)	ND (0.012)	-	-	-	ND (0.012)	-	-	ND (0.012)	-	-	ND (0.012)	-	-	ND (0.012)	ND (0.011)	-	-	-	ND (0.023)	-	-	-	ND (0.024)	ND (0.023)	-	
4,6-Dinitro-o-cresol	mg/K	68	ND (0.029)	-	-	-	-	-	ND (0.059)	ND (0.032)	ND (0.030)	ND (0.031)	-	-	-	ND (0.031)	-	-	ND (0.032)	-	-	ND (0.032)	-	-	ND (0.030)	ND (0.029)	-	-	-	ND (0.058)	-	-	-	ND (0.062)	ND (0.060)	-	
Chrysene	mg/K	230	0.0959	-	-	-	-	-	ND (0.018)	ND (0.0096)	ND (0.0090)	0.0434	-	-	-	ND (0.0095)	-	-	ND (0.0095)	-	-	ND (0.0096)	-	-	ND (0.0089)	ND (0.0086)	-	-	-	ND (0.018)	-	-	-	2.5	0.0603 J	-	
Dibenzo(a,h)anthracene	mg/K	0.2	ND (0.0085)	-	-	-	-	-	ND (0.018)	ND (0.0094)	ND (0.0088)	ND (0.0093)	-	-	-	ND (0.0093)	-	-	ND (0.0093)	-	-	ND (0.0094)	-	-	ND (0.0088)	ND (0.0085)	-	-	-	ND (0.017)	-	-	-	ND (0.018)	ND (0.018)	-	
Fluoranthene	mg/K	24000	0.16	-	-	-	-	-	0.0505 J	ND (0.014)	ND (0.013)	0.0942	-	-	-	ND (0.013)	-	-	ND (0.013)	-	-	ND (0.014)	-	-	ND (0.013)	0.0158 J	-	-	-	ND (0.025)	-	-	-	2.2	0.307	-	
2-Methylphenol	mg/K	3400	ND (0.046)	-	-	-	-	-	ND (0.096)	ND (0.051)	ND (0.048)	ND (0.051)	-	-	-	ND (0.051)	-	-	ND (0.051)	-	-	ND (0.051)	-	-	ND (0.048)	ND (0.046)	-	-	-	ND (0.093)	-	-	-	ND (0.099)	ND (0.096)	-	
3&4-Methylphenol	mg/K	-	ND (0.039)	-	-	-	-	-	ND (0.081)	ND (0.043)	ND (0.041)	ND (0.043)	-	-	-	ND (0.043)	-	-	ND (0.043)	-	-	ND (0.043)	-	-	ND (0.040)	ND (0.039)	-	-	-	ND (0.079)	-	-	-	ND (0.084)	ND (0.082)	-	
Fluorene	mg/K	24000	3.31	-	-	-	-	-	1.11	ND (0.030)	ND (0.028)	ND (0.029)	-	-	-	ND (0.029)	-	-	ND (0.029)	-	-	ND (0.030)	-	-	ND (0.028)	ND (0.027)	-	-	-	4.56	-	-	-	7.93	11.4	-	
Indeno(1,2,3-cd)pyrene	mg/K	2	ND (0.011)	-	-	-	-	-	ND (0.023)	ND (0.012)	ND (0.012)	ND (0.012)	-	-	-	ND (0.012)	-	-	ND (0.012)	-	-	ND (0.012)	-	-	ND (0.012)	ND (0.011)	-	-	-	ND (0.023)	-	-	-	ND (0.024)	ND (0.023)	-	
2-Nitrophenol	mg/K	-	ND (0.032)	-																																	





Table 4-1  
Former Hess Terminal - 750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Sample Results - AOC-26 - Former D-1104 MEA Sump

Client Sample ID:		NJ Non-Residential Direct Contact Soil	MEA-SS-1	MEA-SS-1	MEA-SS-2	MEA-SS-2
Lab Sample ID:			JB99097-1	JB99097-1R	JB99097-2	JB99097-2R
Date Sampled:			7/14/2015	7/14/2015	7/14/2015	7/14/2015
Matrix:			Soil	Soil	Soil	Soil
Depth:			6.5-7.0 ft	6.5-7.0 ft	7.0-7.5 ft	7.0-7.5 ft
GC/MS Volatiles (SW846 8260C)						
Acetone	mg/kg	NA	0.0441	-	ND (0.12)	-
Benzene	mg/kg	5	ND (0.00015)	-	ND (0.0074)	-
Bromochloromethane	mg/kg	-	ND (0.00034)	-	ND (0.017)	-
Bromodichloromethane	mg/kg	3	ND (0.00017)	-	ND (0.0086)	-
Bromoform	mg/kg	280	ND (0.00026)	-	ND (0.013)	-
Bromomethane	mg/kg	59	ND (0.00041)	-	ND (0.020)	-
2-Butanone (MEK)	mg/kg	44000	0.0147	-	ND (0.11)	-
Carbon disulfide	mg/kg	110000	0.0036	-	ND (0.013)	-
Carbon tetrachloride	mg/kg	2	ND (0.00026)	-	ND (0.013)	-
Chlorobenzene	mg/kg	7400	ND (0.00017)	-	ND (0.0086)	-
Chloroethane	mg/kg	1100	ND (0.00054)	-	ND (0.027)	-
Chloroform	mg/kg	2	ND (0.00017)	-	ND (0.0082)	-
Chloromethane	mg/kg	12	ND (0.00029)	-	ND (0.014)	-
Cyclohexane	mg/kg	-	ND (0.00035)	-	ND (0.017)	-
1,2-Dibromo-3-chloropropane	mg/kg	0.2	ND (0.00061)	-	ND (0.030)	-
Dibromochloromethane	mg/kg	8	ND (0.00023)	-	ND (0.011)	-
1,2-Dibromoethane	mg/kg	0.04	ND (0.00015)	-	ND (0.0072)	-
1,2-Dichlorobenzene	mg/kg	59000	ND (0.00014)	-	ND (0.0067)	-
1,3-Dichlorobenzene	mg/kg	59000	ND (0.00018)	-	ND (0.0087)	-
1,4-Dichlorobenzene	mg/kg	13	ND (0.00025)	-	ND (0.012)	-
Dichlorodifluoromethane	mg/kg	230000	ND (0.00040)	-	ND (0.020)	-
1,1-Dichloroethane	mg/kg	24	ND (0.00016)	-	ND (0.0078)	-
1,2-Dichloroethane	mg/kg	3	ND (0.00015)	-	ND (0.0074)	-
1,1-Dichloroethene	mg/kg	150	ND (0.00066)	-	ND (0.033)	-
cis-1,2-Dichloroethene	mg/kg	560	ND (0.00087)	-	ND (0.043)	-
trans-1,2-Dichloroethene	mg/kg	720	ND (0.00066)	-	ND (0.033)	-
1,2-Dichloropropane	mg/kg	5	ND (0.00027)	-	ND (0.013)	-
cis-1,3-Dichloropropene	mg/kg	7	ND (0.00013)	-	ND (0.0065)	-
trans-1,3-Dichloropropene	mg/kg	7	ND (0.00020)	-	ND (0.0098)	-
Ethylbenzene	mg/kg	110000	ND (0.00018)	-	ND (0.0090)	-
Freon 113	mg/kg	-	ND (0.00050)	-	ND (0.025)	-
2-Hexanone	mg/kg	-	ND (0.0015)	-	ND (0.074)	-
Isopropylbenzene	mg/kg	-	ND (0.00012)	-	0.179	-
Methyl Acetate	mg/kg	NA	ND (0.00096)	-	ND (0.048)	-
Methylcyclohexane	mg/kg	-	ND (0.00025)	-	0.0429 J	-
Methyl Tert Butyl Ether	mg/kg	320	ND (0.00017)	-	ND (0.0085)	-
4-Methyl-2-pentanone(MIBK)	mg/kg	-	ND (0.00051)	-	ND (0.025)	-
Methylene chloride	mg/kg	97	ND (0.0011)	-	ND (0.054)	-
Styrene	mg/kg	260	ND (0.00020)	-	ND (0.0098)	-
Tert Butyl Alcohol	mg/kg	11000	ND (0.0030)	-	ND (0.15)	-
1,1,2,2-Tetrachloroethane	mg/kg	3	ND (0.00020)	-	ND (0.0097)	-
Tetrachloroethene	mg/kg	5	ND (0.00034)	-	ND (0.017)	-
Toluene	mg/kg	91000	0.00028 J	-	ND (0.011)	-
1,2,3-Trichlorobenzene	mg/kg	-	ND (0.00020)	-	ND (0.0097)	-
1,2,4-Trichlorobenzene	mg/kg	820	ND (0.00019)	-	ND (0.0093)	-
1,1,1-Trichloroethane	mg/kg	4200	ND (0.00017)	-	ND (0.0082)	-
1,1,2-Trichloroethane	mg/kg	6	ND (0.00016)	-	ND (0.0081)	-
Trichloroethene	mg/kg	20	ND (0.00016)	-	ND (0.0081)	-
Trichlorofluoromethane	mg/kg	340000	ND (0.00028)	-	ND (0.014)	-
Vinyl chloride	mg/kg	2	ND (0.00022)	-	ND (0.011)	-
m,p-Xylene	mg/kg	170000	ND (0.00039)	-	ND (0.019)	-
o-Xylene	mg/kg	170000	ND (0.00031)	-	ND (0.015)	-
Xylene (total)	mg/kg	170000	ND (0.00031)	-	ND (0.015)	-
GC/MS Volatile TIC						
Total TIC, Volatile	mg/kg	-	0.018 J	-	105.1 J	-
Total Alkanes	mg/kg	-	0	-	9.5 J	-

Table 4-1  
Former Hess Terminal - 750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Sample Results - AOC-26 - Former D-1104 MEA Sump

Client Sample ID:		NJ Non-Residential Direct Contact Soil	MEA-SS-1	MEA-SS-1	MEA-SS-2	MEA-SS-2
Lab Sample ID:			JB99097-1	JB99097-1R	JB99097-2	JB99097-2R
Date Sampled:			7/14/2015	7/14/2015	7/14/2015	7/14/2015
Matrix:			Soil	Soil	Soil	Soil
Depth:			6.5-7.0 ft	6.5-7.0 ft	7.0-7.5 ft	7.0-7.5 ft
GC/MS Semi-volatiles (SW846 8270D)						
2-Chlorophenol	mg/kg	2200	ND (0.075)	-	ND (0.074)	-
4-Chloro-3-methyl phenol	mg/kg	-	ND (0.19)	-	ND (0.19)	-
2,4-Dichlorophenol	mg/kg	2100	ND (0.19)	-	ND (0.19)	-
2,4-Dimethylphenol	mg/kg	14000	ND (0.19)	-	ND (0.19)	-
2,4-Dinitrophenol	mg/kg	1400	ND (0.19)	-	ND (0.19)	-
4,6-Dinitro-o-cresol	mg/kg	68	ND (0.19)	-	ND (0.19)	-
2-Methylphenol	mg/kg	3400	ND (0.075)	-	ND (0.074)	-
3&4-Methylphenol	mg/kg	-	ND (0.075)	-	ND (0.074)	-
2-Nitrophenol	mg/kg	-	ND (0.19)	-	ND (0.19)	-
4-Nitrophenol	mg/kg	-	ND (0.38)	-	ND (0.37)	-
Pentachlorophenol	mg/kg	10	ND (0.19)	-	ND (0.19)	-
Phenol	mg/kg	210000	ND (0.075)	-	ND (0.074)	-
2,3,4,6-Tetrachlorophenol	mg/kg	-	ND (0.19)	-	ND (0.19)	-
2,4,5-Trichlorophenol	mg/kg	68000	ND (0.19)	-	ND (0.19)	-
2,4,6-Trichlorophenol	mg/kg	74	ND (0.19)	-	ND (0.19)	-
Acenaphthene	mg/kg	37000	0.0408	-	0.546	-
Acenaphthylene	mg/kg	300000	ND (0.038)	-	ND (0.037)	-
Acetophenone	mg/kg	5	ND (0.19)	-	ND (0.19)	-
Anthracene	mg/kg	30000	0.0177 J	-	ND (0.037)	-
Atrazine	mg/kg	2400	ND (0.075)	-	ND (0.074)	-
Benzo(a)anthracene	mg/kg	2	0.0206 J	-	ND (0.037)	-
Benzo(a)pyrene	mg/kg	0.2	0.0150 J	-	ND (0.037)	-
Benzo(b)fluoranthene	mg/kg	2	0.0236 J	-	ND (0.037)	-
Benzo(g,h,i)perylene	mg/kg	30000	ND (0.038)	-	ND (0.037)	-
Benzo(k)fluoranthene	mg/kg	23	ND (0.038)	-	ND (0.037)	-
4-Bromophenyl phenyl ether	mg/kg	-	ND (0.075)	-	ND (0.074)	-
Butyl benzyl phthalate	mg/kg	14000	ND (0.075)	-	ND (0.074)	-
1,1'-Biphenyl	mg/kg	34000	0.0160 J	-	0.123	-
Benzaldehyde	mg/kg	68000	ND (0.19)	-	ND (0.19)	-
2-Chloronaphthalene	mg/kg	-	ND (0.075)	-	ND (0.074)	-
4-Chloroaniline	mg/kg	-	ND (0.19)	-	ND (0.19)	-
Carbazole	mg/kg	96	0.0275 J	-	ND (0.074)	-
Caprolactam	mg/kg	340000	ND (0.075)	-	ND (0.074)	-
Chrysene	mg/kg	230	0.0225 J	-	ND (0.037)	-
bis(2-Chloroethoxy)methane	mg/kg	-	ND (0.075)	-	ND (0.074)	-
bis(2-Chloroethyl)ether	mg/kg	2	ND (0.075)	-	ND (0.074)	-
bis(2-Chloroisopropyl)ether	mg/kg	67	ND (0.075)	-	ND (0.074)	-
4-Chlorophenyl phenyl ether	mg/kg	-	ND (0.075)	-	ND (0.074)	-
2,4-Dinitrotoluene	mg/kg	3	ND (0.038)	-	ND (0.037)	-
2,6-Dinitrotoluene	mg/kg	3	ND (0.038)	-	ND (0.037)	-
3,3'-Dichlorobenzidine	mg/kg	4	ND (0.075)	-	ND (0.074)	-
1,4-Dioxane	mg/kg	-	ND (0.038)	-	ND (0.037)	-
Dibenzo(a,h)anthracene	mg/kg	0.2	ND (0.038)	-	ND (0.037)	-
Dibenzofuran	mg/kg	-	0.0225 J	-	0.295	-
Di-n-butyl phthalate	mg/kg	68000	ND (0.075)	-	ND (0.074)	-
Di-n-octyl phthalate	mg/kg	27000	ND (0.075)	-	ND (0.074)	-
Diethyl phthalate	mg/kg	550000	ND (0.075)	-	ND (0.074)	-
Dimethyl phthalate	mg/kg	-	ND (0.075)	-	ND (0.074)	-
bis(2-Ethylhexyl)phthalate	mg/kg	140	0.135	-	ND (0.074)	-
Fluoranthene	mg/kg	24000	0.0443	-	0.0392	-
Fluorene	mg/kg	24000	0.0547	-	1.12	-
Hexachlorobenzene	mg/kg	1	ND (0.075)	-	ND (0.074)	-
Hexachlorobutadiene	mg/kg	25	ND (0.038)	-	ND (0.037)	-
Hexachlorocyclopentadiene	mg/kg	110	ND (0.38)	-	ND (0.37)	-
Hexachloroethane	mg/kg	140	ND (0.19)	-	ND (0.19)	-
Indeno(1,2,3-cd)pyrene	mg/kg	2	ND (0.038)	-	ND (0.037)	-
Isophorone	mg/kg	2000	ND (0.075)	-	ND (0.074)	-
2-Methylnaphthalene	mg/kg	2400	0.0651 J	-	ND (0.074)	-
2-Nitroaniline	mg/kg	23000	ND (0.19)	-	ND (0.19)	-
3-Nitroaniline	mg/kg	-	ND (0.19)	-	ND (0.19)	-
4-Nitroaniline	mg/kg	-	ND (0.19)	-	ND (0.19)	-
Naphthalene	mg/kg	17	0.0210 J	-	ND (0.037)	-
Nitrobenzene	mg/kg	340	ND (0.075)	-	ND (0.074)	-
N-Nitroso-di-n-propylamine	mg/kg	0.3	ND (0.075)	-	ND (0.074)	-
N-Nitrosodiphenylamine	mg/kg	390	ND (0.19)	-	ND (0.19)	-
Phenanthrene	mg/kg	300000	0.0815	-	0.335	-
Pyrene	mg/kg	18000	0.0415	-	0.075	-
1,2,4,5-Tetrachlorobenzene	mg/kg	-	ND (0.19)	-	ND (0.19)	-
GC/MS Semi-volatile TIC						
Total TIC, Semi-Volatile	mg/kg	-	2.93 J	-	44.65 J	-
Total Alkanes	mg/kg	-	0.81 J	-	3.8 J	-

Client Sample ID:		NJ Non-Residential Direct Contact Soil	MEA-SS-1	MEA-SS-1	MEA-SS-2	MEA-SS-2
Lab Sample ID:			JB99097-1	JB99097-1R	JB99097-2	JB99097-2R
Date Sampled:			7/14/2015	7/14/2015	7/14/2015	7/14/2015
Matrix:			Soil	Soil	Soil	Soil
Depth:			6.5-7.0 ft	6.5-7.0 ft	7.0-7.5 ft	7.0-7.5 ft
<b>Metals Analysis</b>						
Aluminum	mg/kg	NA	6090	-	10400	-
Antimony	mg/kg	450	<2.3		<2.4	
Arsenic	mg/kg	19	10.1	-	5.9	-
Barium	mg/kg	59000	59	-	84.7	-
Beryllium	mg/kg	140	5.8		0.86	
Cadmium	mg/kg	78	<0.56	-	<0.59	-
Calcium	mg/kg	-	5720	-	4240	-
Chromium	mg/kg		23.8		23.3	
Chromium, Hexavalent	mg/kg	-	-	<0.46	-	<0.47
Cobalt	mg/kg	590	19	-	10	-
Copper	mg/kg	45000	434		26.8	
Iron	mg/kg	-	27000	-	21100	-
Lead	mg/kg	800	261	-	10.5	-
Magnesium	mg/kg		2320		5440	
Manganese	mg/kg	5900	630		244	
Mercury	mg/kg	65	0.085	-	<0.036	-
Nickel	mg/kg	23000	115	-	23.1	-
Potassium	mg/kg		<1100		2800	
Selenium	mg/kg	5700	<2.3	-	<2.4	-
Silver	mg/kg	5700	0.86	-	<0.59	-
Sodium	mg/kg		<1100		1250	
Sulfur	mg/kg	-	-	-	-	-
Thallium	mg/kg	79	<1.1	-	<1.2	-
Vanadium	mg/kg	1100	21.1		29.1	
Zinc	mg/kg	110000	3540	-	50.7	-
<b>General Chemistry</b>						
Redox Potential Vs H2	mv	-	-	549	-	553
Solids, Percent	%		86.2		85.8	
pH	su	-	8.78	8.5	9.4	9.03
All results in mg/kg unless otherwise noted.						
				milligrams per kilogram	mg/kg	
				Estimated Value	J	
				Not Sampled	NS	
Exceeds NJDEP Non-Residential Soil Remediation Stand:				Not Detected	ND	
				Not Analyzed	NA	
				Method Detection Limit	( )	
				Compound Found in Blank	B	
Health based standard defaults to soil saturation limit				**		
Result is from 2nd run				a b		

Table 4-1  
Former Hess Port Reading  
750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Sample Results - AOC-27 - EADC Disposal Pit

Client Sample ID:		NJ Non-Residential Direct Contact Soil	EAVC-SS-1	EAVC-SS-2	EAVC-SS-2	EAVC-SS-3
Lab Sample ID:			JB98904-13	JB98904-14	JB98904-14T	JB98904-15
Date Sampled:			7/9/2015	7/9/2015	7/9/2015	7/9/2015
Matrix:			Soil	Soil	Soil	Soil
Depth:			9.0-9.5 ft	9.0-9.5 ft	9.0-9.5 ft	9.0-9.5 ft
GC/MS Volatiles (SW846 8260C)						
Acetone	mg/kg	NA	0.0179	ND (0.0021)	-	0.0607
Benzene	mg/kg	5	ND (0.00013)	ND (0.00012)	-	0.00033 J
Bromochloromethane	mg/kg	-	ND (0.00030)	ND (0.00029)	-	ND (0.00037)
Bromodichloromethane	mg/kg	3	ND (0.00015)	ND (0.00015)	-	ND (0.00019)
Bromoform	mg/kg	280	ND (0.00023)	ND (0.00022)	-	ND (0.00028)
Bromomethane	mg/kg	59	ND (0.00036)	ND (0.00034)	-	ND (0.00044)
2-Butanone (MEK)	mg/kg	44000	ND (0.0019)	ND (0.0018)	-	ND (0.0023)
Carbon disulfide	mg/kg	110000	ND (0.00022)	0.00070 J	-	0.0021 J
Carbon tetrachloride	mg/kg	2	ND (0.00023)	ND (0.00022)	-	ND (0.00028)
Chlorobenzene	mg/kg	7400	ND (0.00015)	ND (0.00015)	-	ND (0.00019)
Chloroethane	mg/kg	1100	ND (0.00047)	ND (0.00045)	-	ND (0.00058)
Chloroform	mg/kg	2	ND (0.00015)	ND (0.00014)	-	ND (0.00018)
Chloromethane	mg/kg	12	ND (0.00026)	ND (0.00025)	-	ND (0.00032)
Cyclohexane	mg/kg	-	ND (0.00031)	ND (0.00030)	-	ND (0.00038)
1,2-Dibromo-3-chloropropane	mg/kg	0.2	ND (0.00054)	ND (0.00051)	-	ND (0.00065)
Dibromochloromethane	mg/kg	8	ND (0.00020)	ND (0.00019)	-	ND (0.00025)
1,2-Dibromoethane	mg/kg	0.04	ND (0.00013)	ND (0.00012)	-	ND (0.00016)
1,2-Dichlorobenzene	mg/kg	59000	ND (0.00012)	ND (0.00011)	-	ND (0.00015)
1,3-Dichlorobenzene	mg/kg	59000	ND (0.00015)	ND (0.00015)	-	ND (0.00019)
1,4-Dichlorobenzene	mg/kg	13	ND (0.00022)	ND (0.00021)	-	ND (0.00027)
Dichlorodifluoromethane	mg/kg	230000	ND (0.00036)	ND (0.00034)	-	ND (0.00043)
1,1-Dichloroethane	mg/kg	24	ND (0.00014)	ND (0.00013)	-	ND (0.00017)
1,2-Dichloroethane	mg/kg	3	ND (0.00013)	ND (0.00013)	-	ND (0.00016)
1,1-Dichloroethene	mg/kg	150	ND (0.00058)	ND (0.00056)	-	ND (0.00071)
cis-1,2-Dichloroethene	mg/kg	560	ND (0.00077)	ND (0.00073)	-	ND (0.00094)
trans-1,2-Dichloroethene	mg/kg	720	ND (0.00059)	ND (0.00056)	-	ND (0.00071)
1,2-Dichloropropane	mg/kg	5	ND (0.00023)	ND (0.00022)	-	ND (0.00029)
cis-1,3-Dichloropropene	mg/kg	7	ND (0.00012)	ND (0.00011)	-	ND (0.00014)
trans-1,3-Dichloropropene	mg/kg	7	ND (0.00017)	ND (0.00017)	-	ND (0.00021)
Ethylbenzene	mg/kg	110000	ND (0.00016)	ND (0.00015)	-	ND (0.00020)
Freon 113	mg/kg	-	ND (0.00044)	ND (0.00042)	-	ND (0.00054)
2-Hexanone	mg/kg	-	ND (0.0013)	ND (0.0013)	-	ND (0.0016)
Isopropylbenzene	mg/kg	-	ND (0.00010)	ND (0.00010)	-	ND (0.00013)
Methyl Acetate	mg/kg	NA	ND (0.00085)	ND (0.00081)	-	ND (0.0010)
Methylcyclohexane	mg/kg	-	ND (0.00022)	ND (0.00021)	-	ND (0.00027)
Methyl Tert Butyl Ether	mg/kg	320	ND (0.00015)	ND (0.00014)	-	ND (0.00018)
4-Methyl-2-pentanone(MIBK)	mg/kg	-	ND (0.00045)	ND (0.00043)	-	ND (0.00055)
Methylene chloride	mg/kg	97	ND (0.00097)	ND (0.00092)	-	ND (0.0012)
Styrene	mg/kg	260	ND (0.00018)	ND (0.00017)	-	ND (0.00021)
Tert Butyl Alcohol	mg/kg	11000	ND (0.0026)	ND (0.0025)	-	ND (0.0032)
1,1,2,2-Tetrachloroethane	mg/kg	3	ND (0.00017)	ND (0.00016)	-	ND (0.00021)
Tetrachloroethene	mg/kg	5	ND (0.00030)	ND (0.00028)	-	ND (0.00036)
Toluene	mg/kg	91000	ND (0.00021)	ND (0.00020)	-	ND (0.00025)
1,2,3-Trichlorobenzene	mg/kg	-	ND (0.00017)	ND (0.00017)	-	ND (0.00021)
1,2,4-Trichlorobenzene	mg/kg	820	ND (0.00017)	ND (0.00016)	-	ND (0.00020)
1,1,1-Trichloroethane	mg/kg	4200	ND (0.00015)	ND (0.00014)	-	ND (0.00018)
1,1,2-Trichloroethane	mg/kg	6	ND (0.00014)	ND (0.00014)	-	ND (0.00018)
Trichloroethene	mg/kg	20	ND (0.00014)	ND (0.00014)	-	ND (0.00018)
Trichlorofluoromethane	mg/kg	340000	ND (0.00025)	ND (0.00023)	-	ND (0.00030)
Vinyl chloride	mg/kg	2	ND (0.00019)	ND (0.00019)	-	ND (0.00024)
m,p-Xylene	mg/kg	170000	ND (0.00035)	ND (0.00033)	-	ND (0.00042)
o-Xylene	mg/kg	170000	ND (0.00027)	ND (0.00026)	-	ND (0.00033)
Xylene (total)	mg/kg	170000	ND (0.00027)	ND (0.00026)	-	ND (0.00033)



Table 4-1  
Former Hess Port Reading  
750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Sample Results - AOC-27 - EADC Disposal Pit

Client Sample ID:		NJ Non-Residential Direct Contact Soil	EAVC-SS-1	EAVC-SS-2	EAVC-SS-2	EAVC-SS-3
Lab Sample ID:			JB98904-13	JB98904-14	JB98904-14T	JB98904-15
Date Sampled:			7/9/2015	7/9/2015	7/9/2015	7/9/2015
Matrix:			Soil	Soil	Soil	Soil
Depth:			9.0-9.5 ft	9.0-9.5 ft	9.0-9.5 ft	9.0-9.5 ft
GC/MS Volatile TIC						
Total TIC, Volatile	mg/kg	-	0.0061 J	0	-	0
Total Alkanes	mg/kg	-	0	0	-	0
GC/MS Semi-volatiles (SW846 8270D)						
2-Chlorophenol	mg/kg	2200	ND (0.076)	ND (0.077)	-	ND (0.082)
4-Chloro-3-methyl phenol	mg/kg	-	ND (0.19)	ND (0.19)	-	ND (0.20)
2,4-Dichlorophenol	mg/kg	2100	ND (0.19)	ND (0.19)	-	ND (0.20)
2,4-Dimethylphenol	mg/kg	14000	ND (0.19)	ND (0.19)	-	ND (0.20)
2,4-Dinitrophenol	mg/kg	1400	ND (0.19)	ND (0.19)	-	ND (0.20)
4,6-Dinitro-o-cresol	mg/kg	68	ND (0.19)	ND (0.19)	-	ND (0.20)
2-Methylphenol	mg/kg	3400	ND (0.076)	ND (0.077)	-	ND (0.082)
3&4-Methylphenol	mg/kg	-	ND (0.076)	ND (0.077)	-	ND (0.082)
2-Nitrophenol	mg/kg	-	ND (0.19)	ND (0.19)	-	ND (0.20)
4-Nitrophenol	mg/kg	-	ND (0.38)	ND (0.39)	-	ND (0.41)
Pentachlorophenol	mg/kg	10	ND (0.19)	ND (0.19)	-	ND (0.20)
Phenol	mg/kg	210000	ND (0.076)	ND (0.077)	-	ND (0.082)
2,3,4,6-Tetrachlorophenol	mg/kg	-	ND (0.19)	ND (0.19)	-	ND (0.20)
2,4,5-Trichlorophenol	mg/kg	68000	ND (0.19)	ND (0.19)	-	ND (0.20)
2,4,6-Trichlorophenol	mg/kg	74	ND (0.19)	ND (0.19)	-	ND (0.20)
Acenaphthene	mg/kg	37000	ND (0.038)	ND (0.039)	-	ND (0.041)
Acenaphthylene	mg/kg	300000	ND (0.038)	ND (0.039)	-	ND (0.041)
Acetophenone	mg/kg	5	ND (0.19)	ND (0.19)	-	ND (0.20)
Anthracene	mg/kg	30000	ND (0.038)	ND (0.039)	-	ND (0.041)
Atrazine	mg/kg	2400	ND (0.076)	ND (0.077)	-	ND (0.082)
Benzo(a)anthracene	mg/kg	2	ND (0.038)	ND (0.039)	-	ND (0.041)
Benzo(a)pyrene	mg/kg	0.2	ND (0.038)	ND (0.039)	-	ND (0.041)
Benzo(b)fluoranthene	mg/kg	2	ND (0.038)	ND (0.039)	-	ND (0.041)
Benzo(g,h,i)perylene	mg/kg	30000	ND (0.038)	ND (0.039)	-	ND (0.041)
Benzo(k)fluoranthene	mg/kg	23	ND (0.038)	ND (0.039)	-	ND (0.041)
4-Bromophenyl phenyl ether	mg/kg	-	ND (0.076)	ND (0.077)	-	ND (0.082)
Butyl benzyl phthalate	mg/kg	14000	ND (0.076)	ND (0.077)	-	ND (0.082)
1,1'-Biphenyl	mg/kg	34000	ND (0.076)	ND (0.077)	-	ND (0.082)
Benzaldehyde	mg/kg	68000	ND (0.19)	ND (0.19)	-	ND (0.20)
2-Chloronaphthalene	mg/kg	-	ND (0.076)	ND (0.077)	-	ND (0.082)
4-Chloroaniline	mg/kg	-	ND (0.19)	ND (0.19)	-	ND (0.20)
Carbazole	mg/kg	96	ND (0.076)	ND (0.077)	-	ND (0.082)
Caprolactam	mg/kg	340000	ND (0.076)	ND (0.077)	-	ND (0.082)
Chrysene	mg/kg	230	ND (0.038)	ND (0.039)	-	ND (0.041)
bis(2-Chloroethoxy)methane	mg/kg	-	ND (0.076)	ND (0.077)	-	ND (0.082)
bis(2-Chloroethyl)ether	mg/kg	2	ND (0.076)	ND (0.077)	-	ND (0.082)
bis(2-Chloroisopropyl)ether	mg/kg	67	ND (0.076)	ND (0.077)	-	ND (0.082)
4-Chlorophenyl phenyl ether	mg/kg	-	ND (0.076)	ND (0.077)	-	ND (0.082)
2,4-Dinitrotoluene	mg/kg	3	ND (0.038)	ND (0.039)	-	ND (0.041)
2,6-Dinitrotoluene	mg/kg	3	ND (0.038)	ND (0.039)	-	ND (0.041)
3,3'-Dichlorobenzidine	mg/kg	4	ND (0.076)	ND (0.077)	-	ND (0.082)
1,4-Dioxane	mg/kg	-	ND (0.038)	ND (0.039)	-	ND (0.041)
Dibenzo(a,h)anthracene	mg/kg	0.2	ND (0.038)	ND (0.039)	-	ND (0.041)
Dibenzofuran	mg/kg	-	ND (0.076)	ND (0.077)	-	ND (0.082)
Di-n-butyl phthalate	mg/kg	68000	ND (0.076)	ND (0.077)	-	ND (0.082)
Di-n-octyl phthalate	mg/kg	27000	ND (0.076)	ND (0.077)	-	ND (0.082)
Diethyl phthalate	mg/kg	550000	ND (0.076)	ND (0.077)	-	ND (0.082)
Dimethyl phthalate	mg/kg	-	ND (0.076)	ND (0.077)	-	ND (0.082)
bis(2-Ethylhexyl)phthalate	mg/kg	140	ND (0.076)	ND (0.077)	-	ND (0.082)
Fluoranthene	mg/kg	24000	ND (0.038)	ND (0.039)	-	ND (0.041)
Fluorene	mg/kg	24000	ND (0.038)	ND (0.039)	-	ND (0.041)
Hexachlorobenzene	mg/kg	1	ND (0.076)	ND (0.077)	-	ND (0.082)
Hexachlorobutadiene	mg/kg	25	ND (0.038)	ND (0.039)	-	ND (0.041)
Hexachlorocyclopentadiene	mg/kg	110	ND (0.38)	ND (0.39)	-	ND (0.41)
Hexachloroethane	mg/kg	140	ND (0.19)	ND (0.19)	-	ND (0.20)
Indeno(1,2,3-cd)pyrene	mg/kg	2	ND (0.038)	ND (0.039)	-	ND (0.041)
Isophorone	mg/kg	2000	ND (0.076)	ND (0.077)	-	ND (0.082)
2-Methylnaphthalene	mg/kg	2400	ND (0.076)	ND (0.077)	-	ND (0.082)
2-Nitroaniline	mg/kg	23000	ND (0.19)	ND (0.19)	-	ND (0.20)
3-Nitroaniline	mg/kg	-	ND (0.19)	ND (0.19)	-	ND (0.20)
4-Nitroaniline	mg/kg	-	ND (0.19)	ND (0.19)	-	ND (0.20)
Naphthalene	mg/kg	17	ND (0.038)	ND (0.039)	-	ND (0.041)
Nitrobenzene	mg/kg	340	ND (0.076)	ND (0.077)	-	ND (0.082)
N-Nitroso-di-n-propylamine	mg/kg	0.3	ND (0.076)	ND (0.077)	-	ND (0.082)
N-Nitrosodiphenylamine	mg/kg	390	ND (0.19)	ND (0.19)	-	ND (0.20)
Phenanthrene	mg/kg	300000	ND (0.038)	ND (0.039)	-	ND (0.041)
Pyrene	mg/kg	18000	ND (0.038)	ND (0.039)	-	ND (0.041)
1,2,4,5-Tetrachlorobenzene	mg/kg	-	ND (0.19)	ND (0.19)	-	ND (0.20)

Table 4-1  
Former Hess Port Reading  
750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Sample Results - AOC-27 - EADC Disposal Pit

Client Sample ID:		NJ Non-Residential Direct Contact Soil	EAVC-SS-1	EAVC-SS-2	EAVC-SS-2	EAVC-SS-3
Lab Sample ID:			JB98904-13	JB98904-14	JB98904-14T	JB98904-15
Date Sampled:			7/9/2015	7/9/2015	7/9/2015	7/9/2015
Matrix:			Soil	Soil	Soil	Soil
Depth:			9.0-9.5 ft	9.0-9.5 ft	9.0-9.5 ft	9.0-9.5 ft
GC/MS Semi-volatile TIC						
Total TIC, Semi-Volatile	mg/kg	-	0.76 J	0.64 J	-	2.99 J
Total Alkanes	mg/kg	-	0	0	-	0
GC Semi-volatiles (NJDEP EPH)						
EPH (C9-C28)	mg/kg	-	ND (4.7)	ND (4.7)	-	33.7
EPH (>C28-C40)	mg/kg	-	ND (4.7)	ND (4.7)	-	21.4
Total EPH (C9-C40)	mg/kg	-	ND (4.7)	ND (4.7)	-	55.1
Metals Analysis						
Aluminum	mg/kg	NA	6950	11300	-	10500
Antimony	mg/kg	450	<2.5	<2.4	-	<2.4
Arsenic	mg/kg	19	<2.5	6.5	-	6.2
Barium	mg/kg	59000	26.6	130	-	61.2
Beryllium	mg/kg	140	0.26	1	-	0.54
Cadmium	mg/kg	78	<0.62	<0.60	-	<0.60
Calcium	mg/kg	-	<620	1560	-	721
Chromium	mg/kg	-	12.2	28.8	-	19.3
Chromium, Hexavalent	mg/kg	-	-	-	<0.47	-
Cobalt	mg/kg	590	<6.2	10.6	-	<6.0
Copper	mg/kg	45000	7.6	11.6	-	31
Iron	mg/kg	-	9930	31000	-	17900
Lead	mg/kg	800	6.1	13	-	60.2
Magnesium	mg/kg	-	1750	5430	-	3130
Manganese	mg/kg	5900	65.4	537	-	154
Mercury	mg/kg	65	<0.035	<0.038	-	0.12
Nickel	mg/kg	23000	13.5	29.6	-	15.1
Potassium	mg/kg	-	<1200	2510	-	1610
Selenium	mg/kg	5700	<2.5	<2.4	-	<2.4
Silver	mg/kg	5700	<0.62	<0.60	-	<0.60
Sodium	mg/kg	-	<1200	<1200	-	<1200
Sulfur	mg/kg	-	-	-	-	-
Thallium	mg/kg	79	<1.2	<1.2	-	<1.2
Vanadium	mg/kg	1100	18.2	30.9	-	27.1
Zinc	mg/kg	110000	21.8	60.2	-	50.4
General Chemistry						
Nitrogen, Ammonia	mg/kg	-	6.7	<3.0	-	24
Redox Potential Vs H2	mv	-	-	-	536	-
Solids, Percent	%	-	84.5	84.5	-	79.9
pH	su	-	5.04	6.28	6	6.48
All results in mg/kg unless otherwise noted.						
				milligrams per kilogram	mg/kg	
				Estimated Value	J	
				Not Sampled	NS	
				Not Detected	ND	
				Not Analyzed	NA	
				Method Detection Limit	( )	
				Compound Found in Blank	B	
				Health based standard defaults to soil saturation limit	**	
				Result is from 2nd run	a b	

Table 4-1  
Hess Corporation - Former Port Reading Complex (HC-PR) - 750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Analytical Results - AOC-28 - Cooling Water Tower

Client Sample ID:		NJ Non-Residential Direct Contact Soil	CT-SB-1 (2.0-2.5)	CT-SB-2 (2.5-3.0)	CT-SB-3 (5.5-6.0)	CT-SB-4 (6.0-6.5)	CT-SB-5 (6.0-6.5)
Lab Sample ID:			JB62458-1	JB62458-2	JB62631-1	JB62458-3	JB62458-4
Date Sampled:			3/19/2014	3/19/2014	3/21/2014	3/19/2014	3/20/2014
Sample Depth:			(2.0-5.0)	(2.5-3.0)	(5.5-6.0)	(6.0-6.5)	(6.0-6.5)
Matrix:			Soil	Soil	Soil	Soil	Soil
Volatile Organic Compounds							
Acetone	mg/kg	-	ND	0.0114	ND	ND	ND
Benzene	mg/kg	5	ND	ND	ND	ND	ND
2-Butanone	mg/kg	44,000	ND	ND	ND	ND	ND
Carbon Disulfide	mg/kg	110,000	ND	0.0015 J	ND	ND	ND
Chlorobenzene	mg/kg	7,400	ND	ND	ND	ND	ND
Chloroform	mg/kg	2	ND	ND	ND	0.0071	ND
Cyclohexane	mg/kg	-	ND	ND	ND	ND	ND
1,2 Dichlorobenzene	mg/kg	59,000	ND	ND	ND	ND	ND
1,4 Dichlorobenzene	mg/kg	13	ND	ND	ND	ND	ND
cis-1,2-dichloroethene	mg/kg	560	ND	ND	ND	0.0016 J	ND
1,2-Dichloropropane	mg/kg	5	ND	ND	ND	0.0017 J	ND
Ethylbenzene	mg/kg	110,000	ND	ND	ND	ND	ND
Isopropylbenzene	mg/kg	-	ND	ND	ND	ND	ND
Methyl acetate	mg/kg	-	ND	ND	ND	ND	ND
Methylcyclohexane	mg/kg	-	ND	ND	ND	ND	ND
Methylene chloride	mg/kg	97	ND	ND	ND	ND	0.0034 J
tertiary Butyl alcohol (TBA)	mg/kg	11,000	ND	ND	ND	ND	ND
Tetrachloroethene	mg/kg	5	ND	ND	ND	0.0024 J	ND
Toluene	mg/kg	91,000	ND	ND	ND	ND	ND
Total Xylene	mg/kg	170,000	ND	ND	ND	ND	ND
Total Volatile TICs	mg/kg	-	ND	ND	ND	ND	ND
Metals							
Aluminum	mg/kg	-	3,500	8,420	8,800	15,400	11,700
Antimony	mg/kg	450	<2.2	<2.5	<0.94	<2.3	<2.3
Arsenic	mg/kg	19^	7.6	5.8	6.9	3.4	6.4
Barium	mg/kg	59000	<22	41.9	178	233	140
Beryllium	mg/kg	140	0.44	0.69	1.3	1.1	1.4
Cadmium	mg/kg	78	<0.55	<0.63	<0.37	<0.57	<0.59
Calcium	mg/kg	-	678	662	775	2,260	2,300
Chromium	mg/kg	-	10.8	16.2	22.1	26.6	24.8
Cobalt	mg/kg	590	<5.5	6.7	14.5	12.7	11.0
Copper	mg/kg	45000	7.3	20.4	23.4	12.6	20.2
Iron	mg/kg	-	21,900	18,300	30,700	25,700	26,500
Lead	mg/kg	800	4.4	11.3	12.3	12.0	11.0
Magnesium	mg/kg	-	1,460	2,950	4,670	7,380	5,950
Manganese	mg/kg	5900	116	184	856	523	452
Mercury	mg/kg	65	<0.035	<0.040	<0.038	<0.039	<0.037
Nickel	mg/kg	23000	9.6	14.6	28.8	30.1	29.3
Potassium	mg/kg	-	<1,100	1,420	1,370	3,000	2,630
Selenium	mg/kg	5700	<2.2	<2.5	<0.94	<2.3	<2.3
Silver	mg/kg	5700	0.77	0.75	<0.47	0.84	0.76
Sodium	mg/kg	-	<1,100	1,740	9,540	<1,100	<1,200
Thallium	mg/kg	79	<1.1	<1.3	<0.94	<1.1	<1.2
Vanadium	mg/kg	1100	18.4	20.5	26.7	26.9	32.6
Zinc	mg/kg	110000	43.1	47.6	75.2	69.7	57.5
Pesticides							
Pesticides		-	NA	NA	ND	NA	NA

All results in mg/kg unless otherwise noted.		milligrams per kilogram	mg/kg
		Estimated Value	J
		Not Sampled	NS
		Not Detected	ND
		Not Analyzed	NA
		Method Detection Limit	( )
		Compound Found in Blank	B
		Health based standard defaults to soil saturation limit	**
		Result is from 2nd run	a b

Table 4-1  
Former Hess Terminal - 750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Sample Results - AOC-28 - Cooling Water Tower

Client Sample ID:		NJ Non-Residential Direct Contact Soil	CT-SS-6	CT-SS-6
Lab Sample ID:			JB99546-2	JB99546-2T
Date Sampled:			7/20/2015	7/20/2015
Sample Depth:			5.5-6.0 ft	5.5-6.0 ft
Matrix:			Soil	Soil
<b>GC/MS Volatiles (SW846 8260C)</b>				
Acetone	mg/kg	NA	0.0386	-
Benzene	mg/kg	5	0.00058 J	-
Bromochloromethane	mg/kg	-	ND (0.0060)	-
Bromodichloromethane	mg/kg	3	ND (0.0024)	-
Bromoform	mg/kg	280	ND (0.0060)	-
Bromomethane	mg/kg	59	ND (0.0060)	-
2-Butanone (MEK)	mg/kg	44000	ND (0.012)	-
Carbon disulfide	mg/kg	110000	0.0049	-
Carbon tetrachloride	mg/kg	2	ND (0.0024)	-
Chlorobenzene	mg/kg	7400	ND (0.0024)	-
Chloroethane	mg/kg	1100	ND (0.0060)	-
Chloroform	mg/kg	2	ND (0.0024)	-
Chloromethane	mg/kg	12	ND (0.0060)	-
Cyclohexane	mg/kg	-	ND (0.0024)	-
1,2-Dibromo-3-chloropropane	mg/kg	0.2	ND (0.0024)	-
Dibromochloromethane	mg/kg	8	ND (0.0024)	-
1,2-Dibromoethane	mg/kg	0.04	ND (0.0012)	-
1,2-Dichlorobenzene	mg/kg	59000	ND (0.0012)	-
1,3-Dichlorobenzene	mg/kg	59000	ND (0.0012)	-
1,4-Dichlorobenzene	mg/kg	13	ND (0.0012)	-
Dichlorodifluoromethane	mg/kg	230000	ND (0.0060)	-
1,1-Dichloroethane	mg/kg	24	ND (0.0012)	-
1,2-Dichloroethane	mg/kg	3	ND (0.0012)	-
1,1-Dichloroethene	mg/kg	150	ND (0.0012)	-
cis-1,2-Dichloroethene	mg/kg	560	ND (0.0012)	-
trans-1,2-Dichloroethene	mg/kg	720	ND (0.0012)	-
1,2-Dichloropropane	mg/kg	5	ND (0.0024)	-
cis-1,3-Dichloropropene	mg/kg	7	ND (0.0024)	-
trans-1,3-Dichloropropene	mg/kg	7	ND (0.0024)	-
Ethylbenzene	mg/kg	110000	0.0326	-
Freon 113	mg/kg	-	ND (0.0060)	-
2-Hexanone	mg/kg	-	ND (0.0060)	-
Isopropylbenzene	mg/kg	-	0.00036 J	-
Methyl Acetate	mg/kg	NA	ND (0.0060)	-
Methylcyclohexane	mg/kg	-	ND (0.0024)	-
Methyl Tert Butyl Ether	mg/kg	320	ND (0.0012)	-
4-Methyl-2-pentanone(MIBK)	mg/kg	-	0.0159	-
Methylene chloride	mg/kg	97	ND (0.0060)	-
Styrene	mg/kg	260	0.0031	-
Tert Butyl Alcohol	mg/kg	11000	ND (0.030)	-
1,1,2,2-Tetrachloroethane	mg/kg	3	ND (0.0024)	-
Tetrachloroethene	mg/kg	5	ND (0.0024)	-
Toluene	mg/kg	91000	0.0069	-
1,2,3-Trichlorobenzene	mg/kg	-	ND (0.0060)	-
1,2,4-Trichlorobenzene	mg/kg	820	ND (0.0060)	-
1,1,1-Trichloroethane	mg/kg	4200	ND (0.0024)	-
1,1,2-Trichloroethane	mg/kg	6	ND (0.0024)	-
Trichloroethene	mg/kg	20	ND (0.0012)	-
Trichlorofluoromethane	mg/kg	340000	0.0012 J	-
Vinyl chloride	mg/kg	2	ND (0.0024)	-
m,p-Xylene	mg/kg	170000	0.119	-
o-Xylene	mg/kg	170000	0.017	-
Xylene (total)	mg/kg	170000	0.136	-
<b>GC/MS Volatile TIC</b>				
Total TIC, Volatile	mg/kg	-	0	-
Total Alkanes	mg/kg	-	0	-
Total Alkanes	mg/kg	-	-	-



Table 4-1  
Former Hess Terminal - 750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Sample Results - AOC-28 - Cooling Water Tower

Client Sample ID:		NJ Non-Residential Direct Contact Soil	CT-SS-6	CT-SS-6
Lab Sample ID:			JB99546-2	JB99546-2T
Date Sampled:			7/20/2015	7/20/2015
Sample Depth:			5.5-6.0 ft	5.5-6.0 ft
Matrix:			Soil	Soil
<b>GC/MS Semi-volatiles (SW846 8270D)</b>				
2-Chlorophenol	mg/kg	2200	ND (0.076)	-
4-Chloro-3-methyl phenol	mg/kg	-	ND (0.19)	-
2,4-Dichlorophenol	mg/kg	2100	ND (0.19)	-
2,4-Dimethylphenol	mg/kg	14000	ND (0.19)	-
2,4-Dinitrophenol	mg/kg	1400	ND (0.19)	-
4,6-Dinitro-o-cresol	mg/kg	68	ND (0.19)	-
2-Methylphenol	mg/kg	3400	ND (0.076)	-
3&4-Methylphenol	mg/kg	-	ND (0.076)	-
2-Nitrophenol	mg/kg	-	ND (0.19)	-
4-Nitrophenol	mg/kg	-	ND (0.38)	-
Pentachlorophenol	mg/kg	10	ND (0.19)	-
Phenol	mg/kg	210000	ND (0.076)	-
2,3,4,6-Tetrachlorophenol	mg/kg	-	ND (0.19)	-
2,4,5-Trichlorophenol	mg/kg	68000	ND (0.19)	-
2,4,6-Trichlorophenol	mg/kg	74	ND (0.19)	-
Acenaphthene	mg/kg	37000	ND (0.038)	-
Acenaphthylene	mg/kg	300000	ND (0.038)	-
Acetophenone	mg/kg	5	ND (0.19)	-
Anthracene	mg/kg	30000	0.0200 J	-
Atrazine	mg/kg	2400	ND (0.076)	-
Benzo(a)anthracene	mg/kg	2	0.0414	-
Benzo(a)pyrene	mg/kg	0.2	0.0366 J	-
Benzo(b)fluoranthene	mg/kg	2	0.0394	-
Benzo(g,h,i)perylene	mg/kg	30000	0.0381	-
Benzo(k)fluoranthene	mg/kg	23	0.0172 J	-
4-Bromophenyl phenyl ether	mg/kg	-	ND (0.076)	-
Butyl benzyl phthalate	mg/kg	14000	0.388	-
1,1'-Biphenyl	mg/kg	34000	ND (0.076)	-
Benzaldehyde	mg/kg	68000	ND (0.19)	-
2-Chloronaphthalene	mg/kg	-	ND (0.076)	-
4-Chloroaniline	mg/kg	-	ND (0.19)	-
Carbazole	mg/kg	96	ND (0.076)	-
Caprolactam	mg/kg	340000	ND (0.076)	-
Chrysene	mg/kg	230	0.0582	-
bis(2-Chloroethoxy)methane	mg/kg	-	ND (0.076)	-
bis(2-Chloroethyl)ether	mg/kg	2	ND (0.076)	-
bis(2-Chloroisopropyl)ether	mg/kg	67	ND (0.076)	-
4-Chlorophenyl phenyl ether	mg/kg	-	ND (0.076)	-
2,4-Dinitrotoluene	mg/kg	3	ND (0.038)	-
2,6-Dinitrotoluene	mg/kg	3	ND (0.038)	-
3,3'-Dichlorobenzidine	mg/kg	4	ND (0.076)	-
1,4-Dioxane	mg/kg	-	ND (0.038)	-
Dibenzo(a,h)anthracene	mg/kg	0.2	ND (0.038)	-
Dibenzofuran	mg/kg	-	ND (0.076)	-
Di-n-butyl phthalate	mg/kg	68000	ND (0.076)	-
Di-n-octyl phthalate	mg/kg	27000	ND (0.076)	-
Diethyl phthalate	mg/kg	550000	ND (0.076)	-
Dimethyl phthalate	mg/kg	-	ND (0.076)	-
bis(2-Ethylhexyl)phthalate	mg/kg	140	0.474	-
Fluoranthene	mg/kg	24000	0.082	-
Fluorene	mg/kg	24000	ND (0.038)	-
Hexachlorobenzene	mg/kg	1	ND (0.076)	-
Hexachlorobutadiene	mg/kg	25	ND (0.038)	-
Hexachlorocyclopentadiene	mg/kg	110	ND (0.38)	-
Hexachloroethane	mg/kg	140	ND (0.19)	-
Indeno(1,2,3-cd)pyrene	mg/kg	2	0.0309 J	-
Isophorone	mg/kg	2000	ND (0.076)	-
2-Methylnaphthalene	mg/kg	2400	0.0464 J	-
2-Nitroaniline	mg/kg	23000	ND (0.19)	-
3-Nitroaniline	mg/kg	-	ND (0.19)	-
4-Nitroaniline	mg/kg	-	ND (0.19)	-
Naphthalene	mg/kg	17	0.0403	-
Nitrobenzene	mg/kg	340	ND (0.076)	-
N-Nitroso-di-n-propylamine	mg/kg	0.3	ND (0.076)	-
N-Nitrosodiphenylamine	mg/kg	390	ND (0.19)	-
Phenanthrene	mg/kg	300000	0.134	-
Pyrene	mg/kg	18000	0.0989	-
1,2,4,5-Tetrachlorobenzene	mg/kg	-	ND (0.19)	-
<b>GC/MS Semi-volatile TIC</b>				
Total TIC, Semi-Volatile	mg/kg	-	4.08 J	-
Total Alkanes	mg/kg	-	0.51 J	-

Table 4-1  
Former Hess Terminal - 750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Sample Results - AOC-28 - Cooling Water Tower

Client Sample ID:		NJ Non-Residential Direct Contact Soil	CT-SS-6	CT-SS-6
Lab Sample ID:			JB99546-2	JB99546-2T
Date Sampled:			7/20/2015	7/20/2015
Sample Depth:			5.5-6.0 ft	5.5-6.0 ft
Matrix:			Soil	Soil
<b>Metals Analysis</b>				
Aluminum	mg/kg	NA	6950	
Antimony	mg/kg	450	ND (2.4)	
Arsenic	mg/kg	19	2.9	
Barium	mg/kg	59000	65.5	
Beryllium	mg/kg	140	0.27	
Cadmium	mg/kg	78	ND (0.59)	
Calcium	mg/kg		72800	
Chromium	mg/kg		24.5	
Chromium, Hexavalent	mg/kg			1.9
Cobalt	mg/kg	590	ND (5.9)	
Copper	mg/kg	45000	51.8	
Iron	mg/kg		12800	
Lead	mg/kg	800	56.7	
Magnesium	mg/kg		5280	
Manganese	mg/kg	5900	160	
Mercury	mg/kg	65	0.053	
Nickel	mg/kg	23000	192	
Potassium	mg/kg		ND (1200)	
Selenium	mg/kg	5700	ND (2.4)	-
Silver	mg/kg	5700	ND (0.59)	-
Sodium	mg/kg	-	ND (1200)	-
Thallium	mg/kg	79	ND (1.2)	-
Vanadium	mg/kg	1100	17.5	-
Zinc	mg/kg	110000	343	-
<b>General Chemistry</b>				
Redox Potential Vs H2	mv	-	-	384
Solids, Percent	%		83.8	
pH	su		11.57	11.65

All results in mg/kg unless otherwise noted.

	Exceeds NJDEP Non-Residential Soil Remediation Standard
mg/kg	milligrams per kilogram
J	Estimated Value
NS	Not Sampled
ND	Not Detected
NA	Not Analyzed
( )	Method Detection Limit
B	Compound Found in Blank
**	Health based standard defaults to soil saturation limit
a	Elevated detection limit due to dilution required for high interfering element.

Table 4-1

Hess Corporation - Former Port Reading Complex (HC-PR) - 750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Analytical Results - AOC 30 - Sulfur Pit

Client Sample ID:		NJ Non-Residential Direct Contact Soil	SP-SB-1 (10.0-10.5)	SP-SB-2 (9.0- 9.5)	SP-SB-3 (5.0- 5.5)	SP-SB-4 (2.0- 2.5)
Lab Sample ID:			JB62630-1	JB62630-2	JB62630-3	JB62630-4
Date Sampled:			4/20/2014	4/20/2014	4/21/2014	4/10/2014
Sample Depth:			(10.0-10.5)	(9.0-9.5)	(5.0-5.5)	(2.0-2.5)
Matrix:			Soil	Soil	Soil	Soil

#### Volatile Organic Compounds

Acetone	mg/kg	NA*	0.0344	0.0117	ND	ND
Benzene	mg/kg	5	ND	0.0012	0.0226 J	ND
2-Butanone	mg/kg	44,000	0.0054 J	ND	ND	ND
Carbon Disulfide	mg/kg	110,000	0.0041 J	0.003 J	0.029 J	ND
Chlorobenzene	mg/kg	7,400	ND	ND	ND	ND
Cyclohexane	mg/kg	-	ND	ND	0.0853 J	ND
1,2 Dichlorobenzene	mg/kg	59,000	ND	ND	ND	ND
1,4 Dichlorobenzene	mg/kg	13	ND	ND	ND	ND
Ethylbenzene	mg/kg	110,000	0.0163	0.0051	6.04	ND
Isopropylbenzene	mg/kg	-	0.0016 J	0.0026 J	0.79	ND
Methyl acetate	mg/kg	NA*	ND	ND	ND	ND
Methylcyclohexane	mg/kg	-	0.013	0.0096	1.83	ND
Methyl Tertiary Butyl Ether	mg/kg	320	NA	NA	NA	NA
Methylene chloride	mg/kg	97	0.0035 J	ND	ND	ND
tertiary Butyl alcohol (TBA)	mg/kg	11,000	ND	ND	ND	ND
Toluene	mg/kg	91,000	ND	0.00073 J	0.0497 J	ND
Total Xylene	mg/kg	170,000	0.0015 J	0.0075	2.27	ND
Total Volatile TICs	mg/kg	-	1.833 (14) J	1.26 (15) J	122.6 (12) J	ND

#### Semi-Volatile Organic Compounds

Acenaphthene	mg/kg	37,000	ND	ND	0.0219 J	ND
Acenaphthylene	mg/kg	300,000	0.0284 J	0.0163 J	0.0251 J	ND
Anthracene	mg/kg	30,000	0.0264 J	0.0345 J	0.108	ND
Benzo(a)anthracene	mg/kg	2	0.490	0.200	0.280	ND
Benzo(a)pyrene	mg/kg	0.2	0.0365 J	0.0655	0.183	ND
Benzo(b)fluoranthene	mg/kg	2	0.0617	0.124	0.281	ND
Benzo(g,h,i)perylene	mg/kg	30,000	0.017 J	0.0243 J	0.0848	ND
Benzo(k)fluoranthene	mg/kg	23	0.0229 J	0.0424	0.102	ND
1,1'-Biphenyl	mg/kg	34,000	ND	0.0361 J	0.0407 J	ND
Butyl benzyl phthalate	mg/kg	14,000	NA	NA	NA	NA
Carbazole	mg/kg	96	ND	ND	ND	ND
Chrysene	mg/kg	230	0.434	0.218	0.397	ND
Dibenz(a,h)anthracene	mg/kg	0.2	ND	ND	0.0267 J	ND
Dibenzofuran	mg/kg	-	ND	ND	ND	ND
Diethyl phthalate	mg/kg	550,000	ND	ND	ND	ND
Di-n-butyl phthalate	mg/kg	68,000	ND	ND	ND	ND
Di-n-octyl phthalate	mg/kg	27,000	ND	0.0624 J	ND	ND
bis(2-Ethylhexyl)phthalate	mg/kg	140	ND	0.115	0.0602 J	0.0556 J
Fluoranthene	mg/kg	24,000	0.668	0.587	1.1 J	ND
Fluorene	mg/kg	24,000	ND	0.0175 J	0.0369 J	ND
Indeno (1,2,3-cd) pyrene	mg/kg	2	ND	0.0229 J	0.0788	ND
2-Methylnaphthalene	mg/kg	2,400	ND	2.28	12.50 <sup>a</sup>	ND
Naphthalene	mg/kg	17	ND	ND	3.380	ND
N-Nitrosodiphenylamine	mg/kg	390	ND	ND	ND	ND
Phenanthrene	mg/kg	300,000	ND	0.214	0.553	ND
Pyrene	mg/kg	18,000	0.603	0.451	0.818	ND
Total Semi-Volatile TICs	mg/kg	-	62.700 (24) J	30.110 (23) J	42.900 (21) J	12.540 (8) J

#### Miscellaneous

Ammonia		-	<1.9	2.9	9.7	2.6
Sulfur		-	5100	1980	5450	493
pH (su)		-	4.56	8.18	7.26	7.5
Solids (%)		-	NA	NA	NA	NA

All results in mg/kg unless otherwise noted.			milligrams per kilogram	mg/kg
			Estimated Value	J
			Not Sampled	NS
			Not Detected	ND
			Not Analyzed	NA
			Method Detection Limit	( )
			Compound Found in Blank	B
			Health based standard defaults to soil saturation limit	**
			Result is from 2nd run	a b

Table 4-1  
Hess Corporation Port Reading Complex (HC-PR) - 750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Analytical Results - AOC-32 - X-1951 ( SRU Neutralization Basin)

Client Sample ID:		NJ Non-Residential Direct Contact	SRUB-SB-1 (6.0-6.5)	SRUB-SB-2 (2.5-3.0)	SRUB-SB-3 (6.0-6.5)
Lab Sample ID:			JB64367-2	JB64367-1	JB64367-3
Date Sampled:			4/10/2014	4/10/2014	4/10/2014
Sample Depth:			(6.0-6.5)	(2.5-3.0)	(6.0-6.5)
Matrix:			Soil	Soil	Soil
Volatile Organic Compounds					
Acetone	mg/kg	NA*	0.0347	0.0297	0.042
Benzene	mg/kg	5	ND	ND	ND
2-Butanone	mg/kg	44000	ND	0.0060 J	ND
Carbon Disulfide	mg/kg	110000	0.0012 J	ND	ND
Chlorobenzene	mg/kg	7400	ND	ND	ND
Cyclohexane	mg/kg	-	ND	ND	ND
1,2 Dichlorobenzene	mg/kg	59000	ND	ND	ND
1,4 Dichlorobenzene	mg/kg	13	ND	ND	ND
Ethylbenzene	mg/kg	110000	ND	0.00067 J	ND
Isopropylbenzene	mg/kg	-	ND	ND	ND
Methyl acetate	mg/kg	NA*	ND	ND	ND
Methylcyclohexane	mg/kg	-	ND	ND	ND
Methyl Tertiary Butyl Ether	mg/kg	320	ND	ND	ND
Methylene chloride	mg/kg	97	ND	ND	ND
tertiary Butyl alcohol (TBA)	mg/kg	11000	0.0097 J	0.0216 J	0.0468
Toluene	mg/kg	91000	ND	0.00032 J	ND
Total Xylene	mg/kg	170000	ND	0.0023	ND
Total Volatile TICs	mg/kg	-	ND	ND	0.0109 (2) J
Semi-Volatile Organic Compounds					
Acenaphthene	mg/kg	37000	ND	ND	ND
Acenaphthylene	mg/kg	300000	ND	ND	ND
Anthracene	mg/kg	30000	ND	ND	ND
Benzo(a)anthracene	mg/kg	2	ND	ND	ND
Benzo(a)pyrene	mg/kg	0.2	ND	ND	ND
Benzo(b)fluoranthene	mg/kg	2	ND	ND	ND
Benzo(g,h,i)perylene	mg/kg	30000	ND	ND	ND
Benzo(k)fluoranthene	mg/kg	23	ND	ND	ND
1,1'-Biphenyl	mg/kg	34000	ND	ND	ND
Butyl benzyl phthalate	mg/kg	14000	ND	ND	0.113
Carbazole	mg/kg	96	ND	ND	ND
Chrysene	mg/kg	230	ND	ND	ND
Dibenz(a,h)anthracene	mg/kg	0.2	ND	ND	ND
Dibenzofuran	mg/kg	-	ND	ND	ND
Diethyl phthalate	mg/kg	550000	ND	ND	ND
Di-n-butyl phthalate	mg/kg	68000	ND	ND	0.0668 J
Di-n-octyl phthalate	mg/kg	27000	ND	ND	0.0641 J
bis(2-Ethylhexyl)phthalate	mg/kg	140	0.0627 J	0.066 J	1.19
Fluoranthene	mg/kg	24000	ND	ND	ND
Fluorene	mg/kg	24000	ND	ND	ND
Indeno (1,2,3-cd) pyrene	mg/kg	2	ND	ND	ND
2-Methylnaphthalene	mg/kg	2400	ND	ND	ND
Naphthalene	mg/kg	17	ND	ND	0.0166 J
N-Nitrosodiphenylamine	mg/kg	390	ND	ND	ND
Phenanthrene	mg/kg	300000	ND	ND	ND
Pyrene	mg/kg	18000	ND	ND	ND
Total Semi-Volatile TICs	mg/kg	-	0.810 (1) J	ND	0.280 (1) J
Miscellaneous					
Ammonia	mg/kg	-	6.6	61.8	<2.5
Sulfur	mg/kg	-	111	192	418
pH (su)	mg/kg	-	8.89	7.99	4.82
Solids (%)	mg/kg	-	81.3	83.7	85.7

All results in mg/kg unless otherwise noted.

	Exceeds NJDEP Non-Residential Soil Remediation Standard
mg/kg	milligrams per kilogram
J	Estimated Value
NS	Not Sampled
ND	Not Detected
NA	Not Analyzed
( )	Method Detection Limit
B	Compound Found in Blank
**	Health based standard defaults to soil saturation limit
a b	Result is from 2nd run



Table 4-1  
Hess Corporation - Former Port Reading Complex (HC-PR) - 750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Sample Results - AOC 33 - X-1936 (Truck Rack Sump No. 2)

Client Sample ID:		NJ Non-Residential Direct Contact Soil	TRS2-SS-1	TRS2-SS-1A	TRS2-SS-2	TRS2-SS-2A
Lab Sample ID:			JC2112-4	JC2112-6	JC2112-3	JC2112-5
Date Sampled:			8/21/2015	8/21/2015	8/21/2015	8/21/2015
Matrix:			Soil	Soil	Soil	Soil
Depth:			2.5-3.0 ft	5.5-6.0 ft	2.5-3.0 ft	5.5-6.0 ft
<b>GC/MS Volatiles (SW846 8260C)</b>						
Acetone	mg/kg	NA	0.0932	ND (0.59)	-	0.0348
Benzene	mg/kg	5	0.0067	0.103	-	0.00027 J
Bromochloromethane	mg/kg	-	ND (0.0049)	ND (0.29)	-	ND (0.0045)
Bromodichloromethane	mg/kg	3	ND (0.0020)	ND (0.12)	-	ND (0.0018)
Bromoform	mg/kg	280	ND (0.0049)	ND (0.29)	-	ND (0.0045)
Bromomethane	mg/kg	59	ND (0.0049)	ND (0.29)	-	ND (0.0045)
2-Butanone (MEK)	mg/kg	44000	ND (0.0099)	ND (0.59)	-	ND (0.0090)
Carbon disulfide	mg/kg	110000	ND (0.0020)	ND (0.12)	-	ND (0.0018)
Carbon tetrachloride	mg/kg	2	ND (0.0020)	ND (0.12)	-	ND (0.0018)
Chlorobenzene	mg/kg	7400	ND (0.0020)	ND (0.12)	-	ND (0.0018)
Chloroethane	mg/kg	1100	ND (0.0049)	ND (0.29)	-	ND (0.0045)
Chloroform	mg/kg	2	ND (0.0020)	ND (0.12)	-	ND (0.0018)
Chloromethane	mg/kg	12	ND (0.0049)	ND (0.29)	-	ND (0.0045)
Cyclohexane	mg/kg	-	0.0065	0.285	-	0.00043 J
1,2-Dibromo-3-chloropropane	mg/kg	0.2	ND (0.0020)	ND (0.12)	-	ND (0.0018)
Dibromochloromethane	mg/kg	8	ND (0.0020)	ND (0.12)	-	ND (0.0018)
1,2-Dibromoethane	mg/kg	0.04	ND (0.00099)	ND (0.059)	-	ND (0.00090)
1,2-Dichlorobenzene	mg/kg	59000	ND (0.00099)	ND (0.059)	-	ND (0.00090)
1,3-Dichlorobenzene	mg/kg	59000	ND (0.00099)	ND (0.059)	-	ND (0.00090)
1,4-Dichlorobenzene	mg/kg	13	ND (0.00099)	ND (0.059)	-	ND (0.00090)
Dichlorodifluoromethane	mg/kg	230000	ND (0.0049)	ND (0.29)	-	ND (0.0045)
1,1-Dichloroethane	mg/kg	24	ND (0.00099)	ND (0.059)	-	ND (0.00090)
1,2-Dichloroethane	mg/kg	3	ND (0.00099)	ND (0.059)	-	ND (0.00090)
1,1-Dichloroethene	mg/kg	150	ND (0.00099)	ND (0.059)	-	ND (0.00090)
cis-1,2-Dichloroethene	mg/kg	560	ND (0.00099)	ND (0.059)	-	ND (0.00090)
trans-1,2-Dichloroethene	mg/kg	720	ND (0.00099)	ND (0.059)	-	ND (0.00090)
1,2-Dichloropropane	mg/kg	5	ND (0.0020)	ND (0.12)	-	ND (0.0018)
cis-1,3-Dichloropropene	mg/kg	7	ND (0.0020)	ND (0.12)	-	ND (0.0018)
trans-1,3-Dichloropropene	mg/kg	7	ND (0.0020)	ND (0.12)	-	ND (0.0018)
Ethylbenzene	mg/kg	110000	0.0074	0.843	-	ND (0.00090)
Freon 113	mg/kg	-	ND (0.0049)	ND (0.29)	-	ND (0.0045)
2-Hexanone	mg/kg	-	ND (0.0049)	ND (0.29)	-	ND (0.0045)
Isopropylbenzene	mg/kg	-	0.0034	0.468	-	0.00060 J
Methyl Acetate	mg/kg	NA	ND (0.0049)	ND (0.29)	-	ND (0.0045)
Methylcyclohexane	mg/kg	-	0.0123	1.48	-	ND (0.0018)
Methyl Tert Butyl Ether	mg/kg	320	0.0096	ND (0.059)	-	0.0099
4-Methyl-2-pentanone(MIBK)	mg/kg	-	ND (0.0049)	ND (0.29)	-	ND (0.0045)
Methylene chloride	mg/kg	97	ND (0.0049)	ND (0.29)	-	ND (0.0045)
Styrene	mg/kg	260	ND (0.0020)	ND (0.12)	-	ND (0.0018)
Tert Butyl Alcohol	mg/kg	11000	2.09	0.833 J	-	0.0216 J
1,1,2,2-Tetrachloroethane	mg/kg	3	ND (0.0020)	ND (0.12)	-	ND (0.0018)
Tetrachloroethene	mg/kg	5	ND (0.0020)	ND (0.12)	-	ND (0.0018)
Toluene	mg/kg	91000	0.0018	0.0603	-	0.00038 J
1,2,3-Trichlorobenzene	mg/kg	-	ND (0.0049)	ND (0.29)	-	ND (0.0045)
1,2,4-Trichlorobenzene	mg/kg	820	ND (0.0049)	ND (0.29)	-	ND (0.0045)
1,1,1-Trichloroethane	mg/kg	4200	ND (0.0020)	ND (0.12)	-	ND (0.0018)
1,1,2-Trichloroethane	mg/kg	6	ND (0.0020)	ND (0.12)	-	ND (0.0018)
Trichloroethene	mg/kg	20	ND (0.00099)	ND (0.059)	-	ND (0.00090)
Trichlorofluoromethane	mg/kg	340000	ND (0.0049)	ND (0.29)	-	ND (0.0045)
Vinyl chloride	mg/kg	2	ND (0.0020)	ND (0.12)	-	ND (0.0018)
m,p-Xylene	mg/kg	170000	0.0054	0.693	-	ND (0.00090)
o-Xylene	mg/kg	170000	0.002	0.3	-	ND (0.00090)
Xylene (total)	mg/kg	170000	0.0074	0.993	-	ND (0.00090)
<b>GC/MS Volatile TIC</b>						
Total TIC, Volatile	mg/kg	-	0.196 J	19.8 J	-	0
Total Alkanes	mg/kg	-	0.121 J	43 J	-	0
<b>GC Semi-volatiles (NJDEP EPH)</b>						
EPH (C9-C28)	mg/kg	-	43.4	33.5	22.9	ND (7.1)
EPH (>C28-C40)	mg/kg	-	39.6	23.9	36.1	ND (7.1)
Total EPH (C9-C40)	mg/kg	-	83	57.4	59	ND (7.1)
<b>Metals Analysis</b>						
Lead	mg/kg	800	27.4	18.9	-	12.2
<b>General Chemistry</b>						
Solids, Percent	%	-	83.1	83.6	81.6	86.4
All results in mg/kg unless otherwise noted.						
			milligrams per kilogram		mg/kg	
			Estimated Value		J	
			Not Sampled		NS	
Exceeds NJDEP Non-Residential Soil Remediation Standard			Not Detected		ND	
			Not Analyzed		NA	
			Method Detection Limit		( )	
			Compound Found in Blank		B	
Health based standard defaults to soil saturation limit					**	
Result is from 2nd run					a b	

Table 4-1  
Hess Corporation - Former Port Reading Complex (HC-PR) - 750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Analytical Results - AOC 34

Client Sample ID:		NJ Non-Residential Direct Contact Soil	API-SS-12	API-SS-16	API-SS-16	API-SS-16	API-SS-16A	API-SS-16A	API-SS-16A	API-SS-16B	API-SS-16B	API-SS-16B	API-SS-15	API-SS-15	API-SS-15	API-SS-15	API-SS-15A	API-SS-16A	API-SS-15B	API-SS-15B	API-SS-15B	API-SS-15B	API-SS-15B	API-SS-15C	API-SS-15C	API-SS-15C	API-SS-13/14	API-SS-13/14	API-SS-13/14	API-SS-13/14 A	API-SS-13/14 A	API-SS-13/14B	API-SS-13/14B	API-SS-13/14B	API-SS-13/14B	API-SS-13/14C	
Lab Sample ID:			JB99944-5	JC2005-1	JC2005-1T	JC2005-1U	JC2306-1	JC2306-1R	JC2306-1T	JC2306-2	JC2306-2R	JC2306-2T	JC2005-2	JC2005-2R	JC2005-2T	JC2005-2U	JC1987-1	JC1987-1R	JC2306-3	JC2306-3R	JC2306-3RA	JC2306-3T	JC2306-4	JC2306-4R	JC2306-4T	JC1987-2	JC1987-2R	JC1987-2T	JC1987-3	JC1987-3R	JC2318-4	JC2318-4A	JC2318-4R	JC2318-4T	JC2318-5		
Date Sampled:			7/23/2015	8/19/2015	8/19/2015	8/19/2015	8/24/2015	8/24/2015	8/24/2015	8/24/2015	8/24/2015	8/19/2015	8/19/2015	8/19/2015	8/19/2015	8/20/2015	8/20/2015	8/24/2015	8/24/2015	8/24/2015	8/24/2015	8/24/2015	8/24/2015	8/24/2015	8/24/2015	8/20/2015	8/20/2015	8/20/2015	8/20/2015	8/20/2015	8/20/2015	8/25/2015	8/25/2015	8/25/2015	8/25/2015	8/25/2015	
Matrix:			Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	
Depth:			1.5-2.0	1.5-2.0	1.5-2.0	1.5-2.0	9.5-10.0	9.5-10.0	9.5-10.0	14.0-14.5	14.0-14.5	14.0-14.5	1.5-2.0	1.5-2.0	1.5-2.0	1.5-2.0	5.0-5.5	5.0-5.5	16.0-16.5	16.0-16.5	16.0-16.5	16.0-16.5	26.0-26.5	26.0-26.5	26.0-26.5	1.5-2.0	1.5-2.0	1.5-2.0	5.5-6.0	5.5-6.0	16.0-16.5	16.0-16.5	16.0-16.5	16.0-16.5	16.0-16.5	26.0-26.5	
GC/MS Volatiles (SW846 8260C)																																					
Acetone	m	NA	0.0057 J	0.0393	-	-	ND	-	-	0.0261	-	-	0.0283	-	-	-	0.0683	-	ND	-	-	-	0.0166	-	-	0.075	-	-	0.0304	-	0.0493	-	-	-	-	0.0134	
Benzene	m	5	0.00026 J	ND	-	-	ND	-	-	ND	-	-	ND	-	-	-	0.00023 J	-	0.0340 J	-	-	-	ND	-	-	0.00018 J	-	-	0.00014 J	-	0.0696	-	-	-	-	ND	
Bromochloromethane	m	-	ND	ND	-	-	ND	-	-	ND	-	-	ND	-	-	-	ND	-	ND	-	-	-	ND	-	-	ND	-	-	ND	-	ND	-	-	-	-	ND	
Bromodichloromethane	m	3	ND	ND	-	-	ND	-	-	ND	-	-	ND	-	-	-	ND	-	ND	-	-	-	ND	-	-	ND	-	-	ND	-	ND	-	-	-	-	ND	
Bromoforn	m	280	ND	ND	-	-	ND	-	-	ND	-	-	ND	-	-	-	ND	-	ND	-	-	-	ND	-	-	ND	-	-	ND	-	ND	-	-	-	-	ND	
Bromomethane	m	59	ND	ND	-	-	ND	-	-	ND	-	-	ND	-	-	-	ND	-	ND	-	-	-	ND	-	-	ND	-	-	ND	-	ND	-	-	-	-	ND	
2-Butanone (MEK)	m	44000	ND	ND	-	-	ND	-	-	ND	-	-	ND	-	-	-	0.0134	-	ND	-	-	-	ND	-	-	0.0144	-	-	ND	-	ND	-	-	-	-	ND	
Carbon disulfide	m	110000	ND	0.0013 J	-	-	ND	-	-	0.0101	-	-	0.00086 J	-	-	-	0.00080 J	-	ND	-	-	-	ND	-	-	0.0053	-	-	0.00036 J	-	0.0133	-	-	-	-	ND	
Carbon tetrachloride	m	2	ND	ND	-	-	ND	-	-	ND	-	-	ND	-	-	-	ND	-	ND	-	-	-	ND	-	-	ND	-	-	ND	-	ND	-	-	-	-	ND	
Chlorobenzene	m	7400	ND	ND	-	-	ND	-	-	ND	-	-	ND	-	-	-	ND	-	1.11	-	-	-	ND	-	-	0.00078 J	-	-	0.00025 J	-	0.0021 J	-	-	-	-	ND	
Chloroethane	m	1100	ND	ND	-	-	ND	-	-	ND	-	-	ND	-	-	-	ND	-	ND	-	-	-	ND	-	-	ND	-	-	ND	-	ND	-	-	-	-	ND	
Chloroform	m	2	ND	ND	-	-	ND	-	-	ND	-	-	ND	-	-	-	ND	-	ND	-	-	-	ND	-	-	ND	-	-	ND	-	ND	-	-	-	-	ND	
Chloromethane	m	12	ND	ND	-	-	ND	-	-	ND	-	-	ND	-	-	-	ND	-	ND	-	-	-	ND	-	-	ND	-	-	ND	-	ND	-	-	-	-	ND	
Cyclohexane	m	-	ND	0.0053	-	-	0.564	-	-	0.00080 J	-	-	ND	-	-	-	0.0045	-	1.1	-	-	-	0.00037 J	-	-	0.0152	-	-	0.0049	-	ND	-	-	-	-	ND	
1,2-Dibromo-3-chloropropane	m	0.2	ND	ND	-	-	ND	-	-	ND	-	-	ND	-	-	-	ND	-	ND	-	-	-	ND	-	-	ND	-	-	ND	-	ND	-	-	-	-	ND	
Dibromochloromethane	m	8	ND	ND	-	-	ND	-	-	ND	-	-	ND	-	-	-	ND	-	ND	-	-	-	ND	-	-	ND	-	-	ND	-	ND	-	-	-	-	ND	
1,2-Dibromomethane	m	0.04	ND	ND	-	-	ND	-	-	ND	-	-	ND	-	-	-	ND	-	ND	-	-	-	ND	-	-	ND	-	-	ND	-	ND	-	-	-	-	ND	
1,2-Dichlorobenzene	m	59000	ND	ND	-	-	0.0417 J	-	-	ND	-	-	ND	-	-	-	ND	-	0.0254 J	-	-	-	ND	-	-	0.0029	-	-	ND	-	ND	-	-	-	-	-	ND
1,3-Dichlorobenzene	m	59000	ND	ND	-	-	0.0279 J	-	-	ND	-	-	ND	-	-	-	ND	-	0.0540 J	-	-	-	ND	-	-	0.0015	-	-	ND	-	ND	-	-	-	-	-	ND
1,4-Dichlorobenzene	m	13	ND	ND	-	-	0.0332 J	-	-	ND	-	-	ND	-	-	-	ND	-	0.185	-	-	-	ND	-	-	0.0024	-	-	ND	-	ND	-	-	-	-	-	ND
Dichlorodifluoromethane	m	230000	ND	ND	-	-	ND	-	-	ND	-	-	ND	-	-	-	ND	-	ND	-	-	-	ND	-	-	ND	-	-	ND	-	ND	-	-	-	-	-	ND
1,1-Dichloroethane	m	24	ND	ND	-	-	ND	-	-	ND	-	-	ND	-	-	-	ND	-	ND	-	-	-	ND	-	-	ND	-	-	ND	-	ND	-	-	-	-	-	ND
1,2-Dichloroethane	m	3	ND	ND	-	-	ND	-	-	ND	-	-	ND	-	-	-	ND	-	ND	-	-	-	ND	-	-	ND	-	-	ND	-	ND	-	-	-	-	-	ND
1,1-Dichloroethene	m	150	ND	ND	-	-	ND	-	-	ND	-	-	ND	-	-	-	ND	-	ND	-	-	-	ND	-	-	ND	-	-	ND	-	ND	-	-	-	-	-	ND
cis-1,2-Dichloroethene	m	560	ND	ND	-	-	ND	-	-	ND	-	-	ND	-	-	-	ND	-	ND	-	-	-	ND	-	-	ND	-	-	ND	-	ND	-	-	-	-	-	ND
trans-1,2-Dichloroethene	m	720	ND	ND	-	-	ND	-	-	ND	-	-	ND	-	-	-	ND	-	ND	-	-	-	ND	-	-	ND	-	-	ND	-	ND	-	-	-	-	-	ND
1,2-Dichloropropane	m	5	ND	ND	-	-	ND	-	-	ND	-	-	ND	-	-	-	ND	-	ND	-	-	-	ND	-	-	ND	-	-	ND	-	ND	-	-	-	-	-	ND
cis-1,3-Dichloropropene	m	7	ND	ND	-	-	ND	-	-	ND	-	-	ND	-	-	-	ND	-	ND	-	-	-	ND	-	-	ND	-	-	ND	-	ND	-	-	-	-	-	ND
trans-1,3-Dichloropropene	m	7	ND	ND	-	-	ND	-	-	ND	-	-	ND	-	-	-	ND	-	ND	-	-	-	ND	-	-	ND	-	-	ND	-	ND	-	-	-	-	-	ND
Ethylbenzene	m	110000	ND	0.00028 J	-	-	ND	-	-	ND	-	-	ND	-	-	-	0.00019 J	-	0.0276 J	-	-	-	ND	-	-	0.00085 J	-	-	ND	-	ND	-	-	-	-	-	ND
Freon 113	m	-	ND	ND	-	-	ND	-	-	ND	-	-	ND	-	-	-	ND	-	ND	-	-	-	ND	-	-	ND	-	-	ND	-	ND	-	-	-	-	-	ND
2-Hexanone	m	-	ND	ND	-	-	ND	-	-	ND	-	-	ND	-	-	-	ND	-	ND	-	-	-	ND	-	-	ND	-	-	ND	-	ND	-	-	-	-	-	ND
Isopropylbenzene	m	-	ND	0.00048 J	-	-	0.303	-	-	ND	-	-	ND	-	-	-	0.00064 J	-	1.12	-	-	-	0.00033 J	-	-	0.00062 J	-	-	0.0025	-	ND	-	-	-	-	-	ND
Methyl Acetate	m	NA	ND	ND	-	-	ND	-	-	ND	-	-	ND	-	-	-	ND	-	ND	-	-	-	ND	-	-	ND	-	-	ND	-	ND	-	-	-	-	-	ND
Methylcyclohexane	m	-	ND	0.0053	-	-	0.931	-	-	0.0014 J	-	-	ND	-	-	-	0.0025	-	5.86	-	-	-	0.003	-	-	0.0561	-	-	0.008								

Table 4-1.  
Hess Corporation - Former Port Reading Complex (HC-PR) - 750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Analytical Results - AOC 34

Client Sample ID:		NJ Non-Residential Direct Contact Soil	API-SS-12	API-SS-16	API-SS-16	API-SS-16	API-SS-16A	API-SS-16A	API-SS-16A	API-SS-16B	API-SS-16B	API-SS-16B	API-SS-15	API-SS-15	API-SS-15	API-SS-15	API-SS-15A	API-SS-15A	API-SS-15B	API-SS-15B	API-SS-15B	API-SS-15B	API-SS-15B	API-SS-15C	API-SS-15C	API-SS-15C	API-SS-13/14	API-SS-13/14	API-SS-13/14	API-SS-13/14 A	API-SS-13/14 A	API-SS-13/14B	API-SS-13/14B	API-SS-13/14B	API-SS-13/14C
Lab Sample ID:			JB99944-5	JC2005-1	JC2005-1T	JC2005-1U	JC2306-1	JC2306-1R	JC2306-1T	JC2306-2R	JC2306-2T	JC2005-2	JC2005-2R	JC2005-2T	JC2005-2U	JC1987-1	JC1987-1R	JC2306-3	JC2306-3R	JC2306-3RA	JC2306-3T	JC2306-4	JC2306-4R	JC2306-4T	JC1987-2	JC1987-2R	JC1987-2T	JC1987-3	JC1987-3R	JC2318-4	JC2318-4A	JC2318-4R	JC2318-4T	JC2318-5	
Date Sampled:			7/23/2015	8/19/2015	8/19/2015	8/19/2015	8/24/2015	8/24/2015	8/24/2015	8/24/2015	8/24/2015	8/19/2015	8/19/2015	8/19/2015	8/19/2015	8/20/2015	8/20/2015	8/24/2015	8/24/2015	8/24/2015	8/24/2015	8/24/2015	8/24/2015	8/24/2015	8/20/2015	8/20/2015	8/20/2015	8/20/2015	8/20/2015	8/25/2015	8/25/2015	8/25/2015	8/25/2015	8/25/2015	
Matrix:			Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Depth:			1.5-2.0	1.5-2.0	1.5-2.0	1.5-2.0	9.5-10.0	9.5-10.0	9.5-10.0	14.0-14.5	14.0-14.5	14.0-14.5	1.5-2.0	1.5-2.0	1.5-2.0	1.5-2.0	5.0-5.5	5.0-5.5	16.0-16.5	16.0-16.5	16.0-16.5	16.0-16.5	26.0-26.5	26.0-26.5	26.0-26.5	1.5-2.0	1.5-2.0	1.5-2.0	5.5-6.0	5.5-6.0	16.0-16.5	16.0-16.5	16.0-16.5	16.0-16.5	26.0-26.5
GC/MS Semi-volatiles (SW846 8270D)																																			
Acenaphthene	m	37000	ND	0.0202 J	-	-	0.0252 J	-	-	ND	-	-	ND	-	-	-	0.0795	-	1.52	-	-	-	ND	-	-	0.0638	-	-	0.375	-	ND	-	-	ND	
Acenaphthylene	m	300000	ND	ND	-	-	ND	-	-	ND	-	-	0.0239 J	-	-	-	ND	-	ND	-	-	-	ND	-	-	ND	-	-	ND	-	ND	-	-	ND	
2-Chlorophenol	m	2300	ND	ND	-	-	ND	-	-	ND	-	-	ND	-	-	-	ND	-	ND	-	-	-	ND	-	-	ND	-	-	ND	-	ND	-	-	ND	
Anthracene	m	30000	ND	0.0258 J	-	-	ND	-	-	ND	-	-	0.0983	-	-	-	0.0732	-	0.601	-	-	-	ND	-	-	ND	-	-	ND	-	ND	-	-	ND	
Benzo(a)anthracene	m	2	ND	ND	-	-	ND	-	-	ND	-	-	ND	-	-	-	0.246	-	0.246	-	-	-	ND	-	-	ND	-	-	ND	-	ND	-	-	ND	
4-Chloro-3-methyl phenol	m	-	ND	0.0263 J	-	-	ND	-	-	ND	-	-	0.0939	-	-	-	0.0666	-	ND	-	-	-	ND	-	-	0.0739	-	-	0.0775	-	ND	-	-	ND	
Benzo(a)pyrene	m	0.2	ND	0.0227 J	-	-	ND	-	-	ND	-	-	0.114	-	-	-	0.064	-	0.119	-	-	-	ND	-	-	0.0672	-	-	0.0701	-	ND	-	-	ND	
2,4-Dichlorophenol	m	2100	ND	ND	-	-	ND	-	-	ND	-	-	ND	-	-	-	ND	-	ND	-	-	-	ND	-	-	ND	-	-	ND	-	ND	-	-	ND	
Benzo(b)fluoranthene	m	2	ND	0.0276 J	-	-	ND	-	-	ND	-	-	0.101	-	-	-	0.0544	-	0.0862	-	-	-	ND	-	-	0.0971	-	-	0.0819	-	ND	-	-	ND	
2,4-Dimethylphenol	m	14000	ND	ND	-	-	ND	-	-	ND	-	-	ND	-	-	-	ND	-	ND	-	-	-	ND	-	-	ND	-	-	ND	-	ND	-	-	ND	
2,4-Dinitrophenol	m	1400	ND	0.0193 J	-	-	ND	-	-	ND	-	-	0.0902	-	-	-	0.0581	-	ND	-	-	-	ND	-	-	0.0488	-	-	0.0479	-	ND	-	-	ND	
Benzo(g,h,i)perylene	m	30000	ND	ND	-	-	ND	-	-	ND	-	-	ND	-	-	-	0.0366 J	-	0.0366 J	-	-	-	ND	-	-	ND	-	-	ND	-	ND	-	-	ND	
Benzo(k)fluoranthene	m	23	ND	ND	-	-	ND	-	-	ND	-	-	0.0237 J	-	-	-	ND	-	0.0244 J	-	-	-	ND	-	-	0.0353	-	-	0.0305 J	-	ND	-	-	ND	
4,6-Dinitro-o-cresol	m	68	ND	0.0822	-	-	ND	-	-	ND	-	-	0.153	-	-	-	0.132	-	ND	-	-	-	ND	-	-	0.105	-	-	0.168	-	ND	-	-	ND	
Chrysene	m	230	ND	ND	-	-	0.0297 J	-	-	ND	-	-	ND	-	-	-	ND	-	0.512	-	-	-	ND	-	-	ND	-	-	ND	-	ND	-	-	ND	
Dibenzo(a,h)anthracene	m	0.2	ND	ND	-	-	ND	-	-	ND	-	-	0.0285 J	-	-	-	0.0179 J	-	0.0249 J	-	-	-	ND	-	-	0.0135 J	-	-	ND	-	ND	-	-	ND	
Fluoranthene	m	24000	ND	0.0441	-	-	0.0216 J	-	-	ND	-	-	0.124	-	-	-	0.103	-	0.232	-	-	-	ND	-	-	0.173	-	-	0.176	-	ND	-	-	ND	
2-Methylphenol	m	3400	ND	ND	-	-	ND	-	-	ND	-	-	ND	-	-	-	ND	-	ND	-	-	-	ND	-	-	ND	-	-	ND	-	ND	-	-	ND	
3,4,4-Methylphenol	m	-	ND	ND	-	-	ND	-	-	ND	-	-	0.0362	-	-	-	0.0718	-	ND	-	-	-	ND	-	-	0.06	-	-	0.613	-	ND	-	-	ND	
Fluorene	m	24000	ND	ND	-	-	ND	-	-	ND	-	-	ND	-	-	-	2.02	-	ND	-	-	-	ND	-	-	ND	-	-	ND	-	ND	-	-	ND	
Indeno(1,2,3-cd)pyrene	m	2	ND	ND	-	-	ND	-	-	ND	-	-	0.0555	-	-	-	0.0277 J	-	0.0235 J	-	-	-	ND	-	-	0.0373	-	-	0.0353 J	-	ND	-	-	ND	
2-Nitrophenol	m	-	ND	ND	-	-	ND	-	-	ND	-	-	ND	-	-	-	ND	-	ND	-	-	-	ND	-	-	ND	-	-	ND	-	ND	-	-	ND	
Naphthalene	m	17	ND	ND	-	-	ND	-	-	ND	-	-	ND	-	-	-	ND	-	ND	-	-	-	ND	-	-	ND	-	-	ND	-	ND	-	-	ND	
4-Nitrophenol	m	-	ND	ND	-	-	ND	-	-	ND	-	-	0.0396	-	-	-	ND	-	ND	-	-	-	ND	-	-	0.0746	-	-	ND	-	ND	-	-	ND	
Pentachlorophenol	m	10	ND	0.1	-	-	ND	-	-	ND	-	-	0.179	-	-	-	0.119	-	ND	-	-	-	ND	-	-	0.366	-	-	1.23	-	ND	-	-	ND	
Phenanthrene	m	300000	ND	ND	-	-	0.0354 J	-	-	ND	-	-	ND	-	-	-	ND	-	6.07	-	-	-	ND	-	-	ND	-	-	ND	-	ND	-	-	ND	
Pyrene	m	18000	ND	ND	-	-	0.0340 J	-	-	ND	-	-	ND	-	-	-	ND	-	0.585	-	-	-	ND	-	-	ND	-	-	ND	-	ND	-	-	ND	
Phenol	m	210000	ND	0.0665	-	-	ND	-	-	ND	-	-	0.23	-	-	-	0.167	-	ND	-	-	-	ND	-	-	0.158	-	-	0.235	-	ND	-	-	ND	
2,3,4,6-Tetrachlorophenol	m	-	ND	ND	-	-	ND	-	-	ND	-	-	ND	-	-	-	ND	-	ND	-	-	-	ND	-	-	ND	-	-	ND	-	ND	-	-	ND	
2,4,5-Trichlorophenol	m	68000	ND	ND	-	-	ND	-	-	ND	-	-	ND	-	-	-	ND	-	ND	-	-	-	ND	-	-	ND	-	-	ND	-	ND	-	-	ND	
2,4,6-Trichlorophenol	m	74	ND	ND	-	-	ND	-	-	ND	-	-	ND	-	-	-	ND	-	ND	-	-	-	ND	-	-	ND	-	-	ND	-	ND	-	-	ND	
Acetophenone	m	5	ND	ND	-	-	ND	-	-	ND	-	-	ND	-	-	-	ND	-	ND	-	-	-	ND	-	-	ND	-	-	ND	-	ND	-	-	ND	
Atrazine	m	2400	ND	ND	-	-	ND	-	-	ND	-	-	ND	-	-	-	ND	-	ND	-	-	-	ND	-	-	ND	-	-	ND	-	ND	-	-		





Table 4-1  
Hess Corporation - Former Port Reading Complex (HC-PR) - 750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Analytical Results - AOC-34

Client Sample ID:		NJ Non-Residential Direct Contact Soil	API-SS-1	API-SS-1	API-SS-2	API-SS-2A	API-SS-3A	API-SS-3B	API-SS-4A	API-SS-4B	API-SS-5A	API-SS-5B	API-SS-6A	API-SS-6A	API-SS-6B	API-SS-6B	API-SS-7	API-SS-7	API-SS-7A	API-SS-7A	API-SS-7B	API-SS-7B	API-SS-7B	API-SS-7C	API-SS-7C	API-SS-7D	API-SS-8	API-SS-8	API-SS-8		
Lab Sample ID:			JC2318-1	JC2318-1T	JC2318-2	JC2318-3	JB99639-5	JB99639-6	JB99639-3	JB99639-4	JB99639-1	JB99639-2	JB99546-3	JB99546-3R	JB99546-4	JB99546-4T	JB99428-6	JB99428-6R	JB99546-5	JB99546-5T	JB99546-6	JB99546-6R	JB99546-6RT	JB99546-7	JB99546-7R	JB99546-8	JB99428-4	JB99428-4R	JB99428-4T		
Date Sampled:			8/25/2015	8/25/2015	8/25/2015	8/25/2015	7/21/2015	7/21/2015	7/21/2015	7/21/2015	7/21/2015	7/21/2015	7/20/2015	7/20/2015	7/20/2015	7/20/2015	7/17/2015	7/17/2015	7/20/2015	7/20/2015	7/20/2015	7/20/2015	7/20/2015	7/20/2015	7/20/2015	7/20/2015	7/17/2015	7/17/2015	7/17/2015		
Matrix:			Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	
Depth:			14.0-14.5 ft	14.0-14.5 ft	14.0-14.5 ft	16.0-16.5 ft	19.0-19.5 ft	27.5-28.0 ft	6.0-6.5 ft	23.5-24.0 ft	15.0-15.5 ft	29.0-29.5 ft	12.0-12.5 ft	12.0-12.5 ft	26.0-26.5 ft	26.0-26.5 ft	0.5-1.0 ft	0.5-1.0 ft	1.5-2.0 ft	1.5-2.0 ft	6.0-6.5 ft	6.0-6.5 ft	6.0-6.5 ft	12.0-12.5 ft	12.0-12.5 ft	26.0-26.5 ft	1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft		
GC/MS Volatiles (SW846 8260C)																															
Acetone	mg/kg	NA	0.0627		0.0309	ND (0.0091)	0.0135	0.0105 J	0.0262	0.0077 J	ND (0.0022)	0.0086 J	ND (0.0021)		ND (0.0032)		0.0134		0.0129		ND (0.14)			0.0066 J		0.0082 J	0.0375				
Benzene	mg/kg	5	ND (0.00050)	-	ND (0.00046)	ND (0.00045)	0.00027 J	ND (0.00016)	ND (0.00014)	ND (0.00015)	ND (0.00013)	ND (0.00017)	ND (0.00012)	-	ND (0.00019)	-	ND (0.00015)	-	ND (0.00014)	-	ND (0.00084)	-	-	ND (0.00012)	-	ND (0.00015)	ND (0.00015)	-	-		
Bromochloromethane	mg/kg		ND (0.0050)		ND (0.0046)	ND (0.0045)	ND (0.00031)	ND (0.00039)	ND (0.00033)	ND (0.00036)	ND (0.00030)	ND (0.00039)	ND (0.00028)		ND (0.00044)		ND (0.00034)		ND (0.00031)		ND (0.0020)			0.00068 J		ND (0.00035)	ND (0.00034)				
Bromodichloromethane	mg/kg	3	ND (0.0020)	-	ND (0.0018)	ND (0.0018)	ND (0.00016)	ND (0.00019)	ND (0.00017)	ND (0.00018)	ND (0.00015)	ND (0.00019)	0.00031 J	-	ND (0.00022)	-	ND (0.00017)	-	ND (0.00016)	-	ND (0.00098)	-	-	0.0061	-	ND (0.00018)	ND (0.00017)	-	-		
Bromoform	mg/kg	280	ND (0.0050)	-	ND (0.0046)	ND (0.0045)	ND (0.00024)	ND (0.00029)	ND (0.00026)	ND (0.00027)	0.0129	ND (0.00029)	0.0225	-	ND (0.00033)	-	ND (0.00026)	-	ND (0.00024)	-	ND (0.015)	-	-	0.011	-	ND (0.00027)	ND (0.00026)	-	-		
Bromomethane	mg/kg	59	ND (0.0050)		ND (0.0046)	ND (0.0045)	ND (0.00037)	ND (0.00045)	ND (0.00039)	ND (0.00042)	ND (0.00035)	ND (0.00045)	ND (0.00033)		ND (0.00052)		ND (0.00040)		ND (0.00037)		ND (0.023)			ND (0.00033)		ND (0.00041)	ND (0.00041)				
2-Butanone (MEK)	mg/kg	44000	ND (0.010)	-	ND (0.0092)	ND (0.0091)	ND (0.00019)	ND (0.00024)	0.0048 J	ND (0.00022)	ND (0.00019)	ND (0.00024)	ND (0.00018)	-	ND (0.00027)	-	ND (0.00021)	-	ND (0.00019)	-	ND (0.12)	-	-	ND (0.00017)	-	ND (0.00022)	0.0033 J	-	-		
Carbon disulfide	mg/kg	110000	0.0011 J		0.012	ND (0.0018)	0.00041 J	0.00041 J	0.0053	ND (0.00027)	ND (0.00022)	0.00041 J	ND (0.00021)		ND (0.00032)		0.00091 J		ND (0.00023)		ND (0.014)			0.00040 J		0.00044 J	0.0016 J				
Carbon tetrachloride	mg/kg	2	ND (0.0020)		ND (0.0018)	ND (0.0018)	ND (0.00023)	ND (0.00028)	ND (0.00025)	ND (0.00027)	ND (0.00022)	ND (0.00029)	ND (0.00021)		ND (0.00033)		ND (0.00025)		ND (0.00023)		ND (0.015)			0.00039 J		ND (0.00026)	ND (0.00026)				
Chlorobenzene	mg/kg	7400	ND (0.0020)	-	ND (0.0018)	ND (0.0018)	ND (0.00016)	ND (0.00019)	ND (0.00017)	ND (0.00018)	0.00047 J	ND (0.00019)	ND (0.00014)	-	ND (0.00022)	-	ND (0.00017)	-	ND (0.00016)	-	0.245	-	-	ND (0.00014)	-	ND (0.00018)	ND (0.00017)	-	-		
Chloroethane	mg/kg	1100	ND (0.0050)		ND (0.0046)	ND (0.0045)	ND (0.00048)	ND (0.00059)	ND (0.00052)	ND (0.00056)	ND (0.00047)	ND (0.00060)	ND (0.00044)		ND (0.00068)		ND (0.00053)		ND (0.00049)		ND (0.030)			ND (0.00043)		ND (0.00055)	ND (0.00054)				
Chloroform	mg/kg	2	ND (0.0020)		ND (0.0018)	ND (0.0018)	ND (0.00016)	ND (0.00018)	ND (0.00016)	ND (0.00017)	ND (0.00015)	ND (0.00019)	0.00027		ND (0.00068)		0.0013 J		ND (0.00015)		ND (0.00094)			ND (0.00017)		ND (0.00055)	ND (0.00054)				
Chloromethane	mg/kg	12	ND (0.0050)	-	ND (0.0046)	ND (0.0045)	ND (0.00026)	ND (0.00032)	ND (0.00028)	ND (0.00030)	ND (0.00026)	ND (0.00033)	ND (0.00024)	-	ND (0.00037)	-	ND (0.00029)	-	ND (0.00027)	-	ND (0.017)	-	-	ND (0.00024)	-	ND (0.00030)	ND (0.00029)	-	-		
Cyclohexane	mg/kg	ND (0.0020)			ND (0.0018)	ND (0.0018)	ND (0.00032)	ND (0.00039)	ND (0.00031)	ND (0.00037)	ND (0.00039)	ND (0.00039)	ND (0.00029)		ND (0.00045)		ND (0.00035)		ND (0.00032)		ND (0.020)			ND (0.00028)		ND (0.00036)	ND (0.00035)				
1,2-Dibromo-3-chloropropane	mg/kg	0.2	ND (0.0020)	-	ND (0.0018)	ND (0.0018)	ND (0.00055)	ND (0.00067)	ND (0.00059)	ND (0.00063)	ND (0.00053)	ND (0.00068)	ND (0.00050)		ND (0.00077)	-	ND (0.00060)	-	ND (0.00055)	-	ND (0.034)	-	-	ND (0.00049)	-	ND (0.00062)	ND (0.00061)	-	-		
Dibromochloromethane	mg/kg	8	ND (0.0020)	-	ND (0.0018)	ND (0.0018)	ND (0.00021)	ND (0.00025)	ND (0.00022)	ND (0.00024)	0.00025 J	ND (0.00028)	ND (0.00019)	-	ND (0.00029)	-	ND (0.00023)	-	ND (0.00021)	-	ND (0.013)	-		0.0054	-	ND (0.00023)	ND (0.00023)	-	-		
1,2-Dibromomethane	mg/kg	0.04	ND (0.0010)		ND (0.00092)	ND (0.00091)	ND (0.00013)	ND (0.00016)	ND (0.00014)	ND (0.00015)	ND (0.00013)	ND (0.00016)	ND (0.00012)		ND (0.00019)		ND (0.00014)		ND (0.00012)		ND (0.00083)			ND (0.00012)		ND (0.00015)	ND (0.00015)				
1,2-Dichlorobenzene	mg/kg	59000	ND (0.0010)	-	ND (0.00092)	ND (0.00091)	ND (0.00012)	ND (0.00015)	ND (0.00013)	ND (0.00014)	0.0043	ND (0.00015)	ND (0.00011)	-	ND (0.00017)	-	ND (0.00013)	-	ND (0.00012)	-	0.0654	-	-	ND (0.00011)	-	ND (0.00014)	ND (0.00014)	-	-		
1,3-Dichlorobenzene	mg/kg	59000	ND (0.0010)		ND (0.00092)	ND (0.00091)	ND (0.00016)	ND (0.00019)	ND (0.00017)	ND (0.00018)	0.00051 J	ND (0.00020)	ND (0.00014)		ND (0.00022)		ND (0.00017)		ND (0.00016)		0.0906			ND (0.00014)		ND (0.00018)	ND (0.00017)				
1,4-Dichlorobenzene	mg/kg	13	0.00058 J		ND (0.00092)	ND (0.00091)	ND (0.00023)	ND (0.00028)	ND (0.00024)	ND (0.00026)	0.0014	ND (0.00028)	ND (0.00021)		ND (0.00032)		ND (0.00025)		ND (0.00023)		0.423			ND (0.00020)		ND (0.00026)	ND (0.00025)				
Dichlorodifluoromethane	mg/kg	230000	ND (0.0050)	-	ND (0.0046)	ND (0.0045)	ND (0.00036)	ND (0.00045)	ND (0.00039)	ND (0.00042)	ND (0.00035)	ND (0.00045)	ND (0.00033)	-	ND (0.00051)	-	ND (0.00040)	-	ND (0.00037)	-	ND (0.023)	-	-	ND (0.00033)	-	ND (0.00041)	ND (0.00040)	-	-		
1,1-Dichloroethane	mg/kg	24	ND (0.0010)		ND (0.00092)	ND (0.00091)	ND (0.00014)	ND (0.00017)	ND (0.00015)	ND (0.00016)	0.00049 J	ND (0.00018)	0.00070 J		ND (0.00020)		ND (0.00016)		ND (0.00014)		ND (0.00089)			0.00018 J		ND (0.00016)	ND (0.00016)				
1,2-Dichloroethane	mg/kg	3	ND (0.0010)		ND (0.00092)	ND (0.00091)	ND (0.00013)	ND (0.00017)	ND (0.00014)	ND (0.00016)	ND (0.00013)	ND (0.00017)	ND (0.00012)		ND (0.00019)		ND (0.00015)		ND (0.00014)		ND (0.00085)			ND (0.00012)		ND (0.00015)	ND (0.00015)				
1,1-Dichloroethene	mg/kg	150	ND (0.0010)	-	ND (0.00092)	ND (0.00091)	ND (0.00059)	ND (0.00073)	ND (0.00064)	ND (0.00069)	0.00066 J	ND (0.00074)	0.00089 J	-	ND (0.00084)	-	ND (0.00065)	-	ND (0.00060)	-	ND (0.037)	-	-	ND (0.00053)	-	ND (0.00067)	ND (0.00066)	-	-		
cis-1,2-Dichloroethene	mg/kg	560	ND (0.0010)		ND (0.00092)	ND (0.00091)	ND (0.00078)	ND (0.00096)	ND (0.00084)	ND (0.00091)	0																				

Table 4-1  
Hess Corporation - Former Port Reading Complex (HC-PR) - 750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Analytical Results - AOC-34

Client Sample ID:			NJ Non-Residential Direct Contact Soil	API-SS-1	API-SS-1	API-SS-2	API-SS-2A	API-SS-3A	API-SS-3B	API-SS-4A	API-SS-4B	API-SS-5A	API-SS-5B	API-SS-6A	API-SS-6A	API-SS-6B	API-SS-6B	API-SS-7	API-SS-7	API-SS-7A	API-SS-7A	API-SS-7B	API-SS-7B	API-SS-7B	API-SS-7B	API-SS-7C	API-SS-7C	API-SS-7D	API-SS-8	API-SS-8	API-SS-8
Lab Sample ID:				JC2318-1	JC2318-1T	JC2318-2	JC2318-3	JB99639-5	JB99639-6	JB99639-3	JB99639-4	JB99639-1	JB99639-2	JB99546-3	JB99546-3R	JB99546-4	JB99546-4T	JB99428-6	JB99428-6R	JB99546-5	JB99546-5T	JB99546-6	JB99546-6R	JB99546-6RT	JB99546-7	JB99546-7R	JB99546-8	JB99428-4	JB99428-4R	JB99428-4T	
Date Sampled:				8/25/2015	8/25/2015	8/25/2015	7/21/2015	7/21/2015	7/21/2015	7/21/2015	7/21/2015	7/21/2015	7/21/2015	7/20/2015	7/20/2015	7/20/2015	7/20/2015	7/17/2015	7/17/2015	7/20/2015	7/20/2015	7/20/2015	7/20/2015	7/20/2015	7/20/2015	7/20/2015	7/17/2015	7/17/2015	7/17/2015		
Matrix:				Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Depth:				14.0-14.5 ft	14.0-14.5 ft	14.0-14.5 ft	16.0-16.5 ft	19.0-19.5 ft	27.5-28.0 ft	6.0-6.5 ft	23.5-24.0 ft	15.0-15.5 ft	29.0-29.5 ft	12.0-12.5 ft	12.0-12.5 ft	26.0-26.5 ft	26.0-26.5 ft	0.5-1.0 ft	0.5-1.0 ft	1.5-2.0 ft	1.5-2.0 ft	6.0-6.5 ft	6.0-6.5 ft	6.0-6.5 ft	12.0-12.5 ft	12.0-12.5 ft	26.0-26.5 ft	1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft	
GC/MS Semi-volatiles (SW846 8270D)																															
2-Chlorophenol	mg/kg	2200	ND (0.078)	-	ND (0.076)	ND (0.074)	ND (0.076)	ND (0.079)	ND (0.076)	ND (0.082)	ND (0.079)	ND (0.085)	ND (0.074)	-	ND (0.10)	-	ND (0.074)	-	ND (0.074)	-	ND (0.076)	-	-	ND (0.075)	-	ND (0.082)	ND (0.071)	-	-		
4-Chloro-3-methyl phenol	mg/kg		ND (0.20)		ND (0.19)	ND (0.19)	ND (0.19)	ND (0.20)	ND (0.19)	ND (0.20)	ND (0.20)	ND (0.21)	ND (0.19)		ND (0.25)		ND (0.19)		ND (0.18)		ND (0.19)			ND (0.19)		ND (0.20)	ND (0.18)				
2,4-Dichlorophenol	mg/kg	2100	ND (0.20)		ND (0.19)	ND (0.19)	ND (0.19)	ND (0.20)	ND (0.19)	ND (0.20)	ND (0.20)	ND (0.21)	ND (0.19)		ND (0.25)		ND (0.19)		ND (0.18)		ND (0.19)			ND (0.19)		ND (0.20)	ND (0.18)				
2,4-Dimethylphenol	mg/kg	14000	ND (0.20)	-	ND (0.19)	ND (0.19)	ND (0.19)	ND (0.20)	ND (0.19)	ND (0.20)	ND (0.20)	ND (0.21)	ND (0.19)	-	ND (0.25)	-	ND (0.19)	-	ND (0.18)	-	ND (0.19)	-	-	ND (0.19)	-	ND (0.20)	ND (0.18)	-	-		
2,4-Dinitrophenol	mg/kg	1400	ND (0.20)		ND (0.19)	ND (0.19)	ND (0.19)	ND (0.20)	ND (0.19)	ND (0.20)	ND (0.20)	ND (0.21)	ND (0.19)		ND (0.25)		ND (0.19)		ND (0.18)		ND (0.19)			ND (0.19)		ND (0.20)	ND (0.18)				
4,6-Dinitro-o-cresol	mg/kg	68	ND (0.20)	-	ND (0.19)	ND (0.19)	ND (0.19)	ND (0.20)	ND (0.19)	ND (0.20)	ND (0.20)	ND (0.21)	ND (0.19)	-	ND (0.25)	-	ND (0.19)	-	ND (0.18)	-	ND (0.19)	-	-	ND (0.19)	-	ND (0.20)	ND (0.18)	-	-		
2-Methylphenol	mg/kg	3400	ND (0.078)	-	ND (0.076)	ND (0.074)	ND (0.076)	ND (0.079)	ND (0.076)	ND (0.082)	ND (0.079)	ND (0.085)	ND (0.074)	-	ND (0.10)	-	ND (0.074)	-	ND (0.074)	-	ND (0.076)	-	-	ND (0.075)	-	ND (0.082)	ND (0.071)	-	-		
3&4-Methylphenol	mg/kg		ND (0.078)		ND (0.076)	ND (0.074)	ND (0.076)	ND (0.079)	ND (0.076)	ND (0.082)	ND (0.079)	ND (0.085)	ND (0.074)		ND (0.10)		ND (0.074)		ND (0.074)		ND (0.076)			ND (0.075)		ND (0.082)	ND (0.071)				
2-Nitrophenol	mg/kg	-	ND (0.20)	-	ND (0.19)	ND (0.19)	ND (0.19)	ND (0.20)	ND (0.19)	ND (0.20)	ND (0.20)	ND (0.21)	ND (0.19)	-	ND (0.25)	-	ND (0.19)	-	ND (0.18)	-	ND (0.19)	-	-	ND (0.19)	-	ND (0.20)	ND (0.18)	-	-		
4-Nitrophenol	mg/kg		ND (0.39)		ND (0.38)	ND (0.37)	ND (0.38)	ND (0.39)	ND (0.38)	ND (0.41)	ND (0.40)	ND (0.42)	ND (0.37)		ND (0.51)		ND (0.37)		ND (0.37)		ND (0.38)		-	ND (0.38)		ND (0.41)	ND (0.35)				
Pentachlorophenol	mg/kg	10	ND (0.20)		ND (0.19)	ND (0.19)	ND (0.19)	ND (0.20)	ND (0.19)	ND (0.20)	ND (0.20)	ND (0.21)	ND (0.19)		ND (0.25)		ND (0.19)		ND (0.18)		ND (0.19)			ND (0.19)		ND (0.20)	ND (0.18)				
Phenol	mg/kg	210000	ND (0.078)	-	ND (0.076)	ND (0.074)	ND (0.076)	ND (0.079)	ND (0.076)	ND (0.082)	ND (0.079)	ND (0.085)	ND (0.074)	-	ND (0.10)	-	ND (0.074)	-	ND (0.074)	-	ND (0.076)	-	-	ND (0.075)	-	ND (0.082)	ND (0.071)	-	-		
2,3,4,6-Tetrachlorophenol	mg/kg		ND (0.20)		ND (0.19)	ND (0.19)	ND (0.19)	ND (0.20)	ND (0.19)	ND (0.20)	ND (0.20)	ND (0.21)	ND (0.19)		ND (0.25)		ND (0.19)		ND (0.18)		ND (0.19)			ND (0.19)		ND (0.20)	ND (0.18)				
2,4,5-Trichlorophenol	mg/kg	68000	ND (0.20)		ND (0.19)	ND (0.19)	ND (0.19)	ND (0.20)	ND (0.19)	ND (0.20)	ND (0.20)	ND (0.21)	ND (0.19)		ND (0.25)		ND (0.19)		ND (0.18)		ND (0.19)			ND (0.19)		ND (0.20)	ND (0.18)				
2,4,6-Trichlorophenol	mg/kg	74	ND (0.20)	-	ND (0.19)	ND (0.19)	ND (0.19)	ND (0.20)	ND (0.19)	ND (0.20)	ND (0.20)	ND (0.21)	ND (0.19)	-	ND (0.25)	-	ND (0.19)	-	ND (0.18)	-	ND (0.19)	-	-	ND (0.19)	-	ND (0.20)	ND (0.18)	-	-		
Acenaphthene	mg/kg	37000	ND (0.039)		ND (0.038)	ND (0.037)	ND (0.038)	ND (0.039)	ND (0.038)	ND (0.041)	ND (0.040)	ND (0.042)	ND (0.037)		ND (0.051)		ND (0.037)		ND (0.037)		0.201			ND (0.038)		ND (0.041)	ND (0.035)				
Acenaphthylene	mg/kg	300000	ND (0.039)	-	ND (0.038)	ND (0.037)	ND (0.038)	ND (0.039)	ND (0.038)	ND (0.041)	ND (0.040)	ND (0.042)	ND (0.037)		ND (0.051)	-	ND (0.037)	-	ND (0.037)	-	ND (0.038)	-	-	ND (0.038)	-	ND (0.041)	ND (0.035)	-	-		
Acetophenone	mg/kg	5	ND (0.20)	-	ND (0.19)	ND (0.19)	ND (0.19)	ND (0.20)	ND (0.19)	ND (0.20)	ND (0.20)	ND (0.21)	ND (0.19)	-	ND (0.25)	-	ND (0.19)	-	ND (0.18)	-	ND (0.19)	-	-	ND (0.19)	-	ND (0.20)	0.0257 J	-	-		
Anthracene	mg/kg	30000	ND (0.039)		ND (0.038)	ND (0.037)	ND (0.038)	ND (0.039)	ND (0.038)	ND (0.041)	ND (0.040)	ND (0.042)	ND (0.037)		ND (0.051)		ND (0.037)		ND (0.037)		0.129			ND (0.038)		ND (0.041)	0.0506				
Atrazine	mg/kg	2400	ND (0.078)	-	ND (0.076)	ND (0.074)	ND (0.076)	ND (0.079)	ND (0.076)	ND (0.082)	ND (0.079)	ND (0.085)	ND (0.074)	-	ND (0.10)	-	ND (0.074)	-	ND (0.074)	-	ND (0.076)	-	-	ND (0.075)	-	ND (0.082)	ND (0.071)	-	-		
Benzo(a)anthracene	mg/kg	2	ND (0.039)		ND (0.038)	ND (0.037)	ND (0.038)	ND (0.039)	ND (0.038)	ND (0.041)	ND (0.040)	ND (0.042)	ND (0.037)		ND (0.051)		0.0175 J		ND (0.037)		0.0223 J			ND (0.038)		ND (0.041)	0.0411				
Benzo(a)pyrene	mg/kg	0.2	ND (0.039)		ND (0.038)	ND (0.037)	ND (0.038)	ND (0.039)	ND (0.038)	ND (0.041)	ND (0.040)	ND (0.042)	ND (0.037)		ND (0.051)		0.0239 J		ND (0.037)		ND (0.038)		-	ND (0.038)		ND (0.041)	0.0324 J				
Benzo(b)fluoranthene	mg/kg	2	ND (0.039)	-	ND (0.038)	ND (0.037)	ND (0.038)	ND (0.039)	ND (0.038)	ND (0.041)	ND (0.040)	ND (0.042)	ND (0.037)	-	ND (0.051)	-	0.0280 J	-	ND (0.037)	-	ND (0.038)	-	-	ND (0.038)	-	ND (0.041)	0.039	-	-		
Benzo(g,h,i)perylene	mg/kg	30000	ND (0.039)		ND (0.038)	ND (0.037)	ND (0.038)	ND (0.039)	ND (0.038)	ND (0.041)	ND (0.040)	ND (0.042)	ND (0.037)		ND (0.051)		0.0351 J		ND (0.037)		ND (0.038)			ND (0.038)		ND (0.041)	0.0286 J				
Benzo(k)fluoranthene	mg/kg	23	ND (0.039)		ND (0.038)	ND (0.037)	ND (0.038)	ND (0.039)	ND (0.038)	ND (0.041)	ND (0.040)	ND (0.042)	ND (0.037)		ND (0.051)		ND (0.037)		ND (0.037)		ND (0.038)			ND (0.038)		ND (0.041)	0.0150 J		</		

Hess Corporation - Former Port Reading Complex (HC-PR) - 750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Analytical Results - AOC-34

Client Sample ID:		NJ Non-Residential Direct Contact Soil	API-SS-1	API-SS-1	API-SS-2	API-SS-2A	API-SS-3A	API-SS-3B	API-SS-4A	API-SS-4B	API-SS-5A	API-SS-5B	API-SS-6A	API-SS-6A	API-SS-6B	API-SS-6B	API-SS-7	API-SS-7	API-SS-7A	API-SS-7A	API-SS-7B	API-SS-7B	API-SS-7B	API-SS-7C	API-SS-7C	API-SS-7D	API-SS-8	API-SS-8	API-SS-8
Lab Sample ID:	JC2318-1		JC2318-1T	JC2318-2	JC2318-3	JB99639-5	JB99639-6	JB99639-3	JB99639-4	JB99639-1	JB99639-2	JB99546-3	JB99546-3R	JB99546-4	JB99546-4T	JB99428-6	JB99428-6R	JB99546-5	JB99546-5T	JB99546-6	JB99546-6R	JB99546-6RT	JB99546-7	JB99546-7R	JB99546-8	JB99428-4	JB99428-4R	JB99428-4T	
Date Sampled:	8/25/2015		8/25/2015	8/25/2015	8/25/2015	7/21/2015	7/21/2015	7/21/2015	7/21/2015	7/21/2015	7/21/2015	7/20/2015	7/20/2015	7/20/2015	7/20/2015	7/17/2015	7/17/2015	7/20/2015	7/20/2015	7/20/2015	7/20/2015	7/20/2015	7/20/2015	7/20/2015	7/20/2015	7/20/2015	7/17/2015	7/17/2015	7/17/2015
Matrix:	Soil		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Depth:		14.0-14.5 ft	14.0-14.5 ft	14.0-14.5 ft	16.0-16.5 ft	19.0-19.5 ft	27.5-28.0 ft	6.0-6.5 ft	23.5-24.0 ft	15.0-15.5 ft	29.0-29.5 ft	12.0-12.5 ft	12.0-12.5 ft	26.0-26.5 ft	26.0-26.5 ft	0.5-1.0 ft	0.5-1.0 ft	1.5-2.0 ft	1.5-2.0 ft	6.0-6.5 ft	6.0-6.5 ft	6.0-6.5 ft	12.0-12.5 ft	12.0-12.5 ft	26.0-26.5 ft	1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft	
GC Semi-volatiles (NIJEP EPH)																													
EPH (C9-C28)	mg/kg													ND (4.7)								2290			ND (4.8)				93.6
EPH (>C28-C40)	mg/kg													ND (4.7)								257			ND (4.8)				212
Total EPH (C9-C40)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	ND (4.7)	-	-	-	-	-	-	-	2550	-	-	ND (4.8)	-	-	-	306
C10-C12 Aromatics	mg/kg																												
C12-C16 Aromatics	mg/kg																												
C16-C21 Aromatics	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-							
C21-C36 Aromatics	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-							
Total Aromatics	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-							
C9-C12 Aliphatics	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-							
C12-C16 Aliphatics	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-							
C16-C21 Aliphatics	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-							
C21-C40 Aliphatics	mg/kg																												
Total Aliphatics	mg/kg																												
Total EPH	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-							
Metals Analysis																													
Aluminum	mg/kg	NA	10900		7730	1730	2160	966	3250	2020	5780	5850	7510		4280		9510		11000		10700			8140		7270	8470		
Antimony																													

Table 4-1  
Hess Corporation - Former Port Reading Complex (HC-PR) - 750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Sample Results - AOC 35 - No. 1 Landfarm Discharge Sumps

Client Sample ID:		NJ Non-Residential Direct Contact Soil	ILF-SS-1	ILF-SS-1A	ILF-SS-2	ILF-SS-2A	ILF-SS-3	ILF-SS-3A	ILF-SS-4	ILF-SS-4A
Lab Sample ID:			JB99944-12	JB99944-13	JB99944-10	JB99944-11	JB99944-7	JB99944-6	JB99944-8	JB99944-9
Date Sampled:			7/23/2015	7/23/2015	7/23/2015	7/23/2015	7/23/2015	7/23/2015	7/23/2015	7/23/2015
Sample Depth:			6.0-6.5	13.0-13.5	6.0-6.5	13.0-13.5	6.0-6.5	13.0-13.5	6.0-6.5	13.0-13.5
Matrix:			Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
GC/MS Volatiles (SW846 8260C)										
Acetone	mg/kg	NA	0.0088 J	0.0629	0.0128	0.0289	0.0552	0.027	0.0070 J	0.0861
Benzene	mg/kg	5	0.0012	0.0029	ND (0.00015)	ND (0.00012)	ND (0.00017)	0.00078	0.00020 J	0.0092
Bromochloromethane	mg/kg	-	ND (0.00034)	ND (0.00039)	ND (0.00035)	ND (0.00027)	ND (0.00039)	ND (0.00040)	ND (0.00031)	ND (0.00074)
Bromodichloromethane	mg/kg	3	ND (0.00017)	ND (0.00020)	ND (0.00018)	ND (0.00014)	ND (0.00020)	ND (0.00020)	ND (0.00016)	ND (0.00037)
Bromoform	mg/kg	280	ND (0.00026)	ND (0.00030)	ND (0.00027)	ND (0.00021)	ND (0.00030)	ND (0.00030)	ND (0.00024)	ND (0.00056)
Bromomethane	mg/kg	59	ND (0.00040)	ND (0.00046)	ND (0.00042)	ND (0.00032)	ND (0.00046)	ND (0.00047)	ND (0.00037)	ND (0.00087)
2-Butanone (MEK)	mg/kg	44000	ND (0.0021)	0.0145	ND (0.0022)	0.0047 J	0.0095 J	0.0044 J	ND (0.0019)	0.0243
Carbon disulfide	mg/kg	110000	ND (0.00025)	0.0022 J	ND (0.00026)	0.0042	0.0026	0.0010 J	ND (0.00023)	0.0014 J
Carbon tetrachloride	mg/kg	2	ND (0.00025)	ND (0.00029)	ND (0.00026)	ND (0.00020)	ND (0.00029)	ND (0.00029)	ND (0.00023)	ND (0.00055)
Chlorobenzene	mg/kg	7400	ND (0.00017)	0.0169	ND (0.00018)	ND (0.00014)	ND (0.00020)	0.0049	ND (0.00016)	0.017
Chloroethane	mg/kg	1100	ND (0.00053)	ND (0.00061)	ND (0.00055)	ND (0.00042)	ND (0.00061)	ND (0.00062)	ND (0.00049)	ND (0.0011)
Chloroform	mg/kg	2	ND (0.00016)	ND (0.00019)	ND (0.00017)	ND (0.00013)	ND (0.00019)	ND (0.00019)	ND (0.00015)	ND (0.00036)
Chloromethane	mg/kg	12	ND (0.00029)	ND (0.00033)	ND (0.00030)	ND (0.00023)	ND (0.00033)	ND (0.00034)	ND (0.00027)	ND (0.00063)
Cyclohexane	mg/kg	-	ND (0.00035)	0.0020 J	ND (0.00036)	ND (0.00028)	ND (0.00040)	0.0026	ND (0.00032)	0.0149
1,2-Dibromo-3-chloropropane	mg/kg	0.2	ND (0.00060)	ND (0.00069)	ND (0.00062)	ND (0.00048)	ND (0.00069)	ND (0.00070)	ND (0.00055)	ND (0.0013)
Dibromochloromethane	mg/kg	8	ND (0.00023)	ND (0.00026)	ND (0.00024)	ND (0.00018)	ND (0.00026)	ND (0.00026)	ND (0.00021)	ND (0.00049)
1,2-Dibromoethane	mg/kg	0.04	ND (0.00014)	ND (0.00017)	ND (0.00015)	ND (0.00012)	ND (0.00017)	ND (0.00017)	ND (0.00013)	ND (0.00031)
1,2-Dichlorobenzene	mg/kg	59000	ND (0.00013)	0.00080 J	ND (0.00014)	ND (0.00011)	ND (0.00015)	0.00057 J	ND (0.00012)	0.0018 J
1,3-Dichlorobenzene	mg/kg	59000	ND (0.00017)	0.00028 J	ND (0.00018)	ND (0.00014)	ND (0.00020)	ND (0.00020)	ND (0.00016)	0.0015 J
1,4-Dichlorobenzene	mg/kg	13	ND (0.00025)	0.00061 J	ND (0.00026)	ND (0.00020)	ND (0.00028)	0.00040 J	ND (0.00023)	0.0013 J
Dichlorodifluoromethane	mg/kg	230000	ND (0.00040)	ND (0.00046)	ND (0.00041)	ND (0.00032)	ND (0.00046)	ND (0.00046)	ND (0.00037)	ND (0.00086)
1,1-Dichloroethane	mg/kg	24	ND (0.00016)	ND (0.00018)	ND (0.00016)	ND (0.00012)	ND (0.00018)	ND (0.00018)	ND (0.00014)	ND (0.00034)
1,2-Dichloroethane	mg/kg	3	ND (0.00015)	ND (0.00017)	ND (0.00015)	ND (0.00012)	ND (0.00017)	ND (0.00017)	ND (0.00014)	ND (0.00032)
1,1-Dichloroethene	mg/kg	150	ND (0.00065)	ND (0.00075)	ND (0.00068)	ND (0.00052)	ND (0.00075)	ND (0.00076)	ND (0.00060)	ND (0.0014)
cis-1,2-Dichloroethene	mg/kg	560	ND (0.00086)	ND (0.00099)	ND (0.00089)	ND (0.00068)	ND (0.00099)	ND (0.0010)	ND (0.00079)	ND (0.0019)
trans-1,2-Dichloroethene	mg/kg	720	ND (0.00065)	ND (0.00075)	ND (0.00068)	ND (0.00052)	ND (0.00075)	ND (0.00076)	ND (0.00060)	ND (0.0014)
1,2-Dichloropropane	mg/kg	5	ND (0.00026)	ND (0.00030)	ND (0.00027)	ND (0.00021)	ND (0.00030)	ND (0.00031)	ND (0.00024)	ND (0.00057)
cis-1,3-Dichloropropene	mg/kg	7	ND (0.00013)	ND (0.00015)	ND (0.00014)	ND (0.00010)	ND (0.00015)	ND (0.00015)	ND (0.00012)	ND (0.00028)
trans-1,3-Dichloropropene	mg/kg	7	ND (0.00019)	ND (0.00022)	ND (0.00020)	ND (0.00016)	ND (0.00022)	ND (0.00023)	ND (0.00018)	ND (0.00042)
Ethylbenzene	mg/kg	110000	ND (0.00018)	0.00028 J	ND (0.00019)	ND (0.00014)	ND (0.00021)	ND (0.00021)	ND (0.00017)	0.0015 J
Freon 113	mg/kg	-	ND (0.00049)	ND (0.00057)	ND (0.00051)	ND (0.00039)	ND (0.00057)	ND (0.00057)	ND (0.00046)	ND (0.0011)
2-Hexanone	mg/kg	-	ND (0.0015)	ND (0.0017)	ND (0.0015)	ND (0.0012)	ND (0.0017)	ND (0.0017)	ND (0.0014)	ND (0.0032)
Isopropylbenzene	mg/kg	-	ND (0.00012)	0.00022 J	ND (0.00012)	ND (0.000093)	ND (0.00013)	0.00047 J	ND (0.00011)	0.00077 J
Methyl Acetate	mg/kg	NA	ND (0.00095)	ND (0.0011)	ND (0.00099)	ND (0.00076)	ND (0.0011)	ND (0.0011)	ND (0.00088)	ND (0.0021)
Methylcyclohexane	mg/kg	-	ND (0.00025)	0.00073 J	ND (0.00026)	ND (0.00020)	ND (0.00029)	0.0014 J	ND (0.00023)	0.0032 J
Methyl Tert Butyl Ether	mg/kg	320	ND (0.00017)	ND (0.00019)	ND (0.00018)	ND (0.00013)	ND (0.00019)	ND (0.00020)	ND (0.00016)	ND (0.00037)
4-Methyl-2-pentanone(MIBK)	mg/kg	-	ND (0.00050)	ND (0.00058)	ND (0.00053)	ND (0.00040)	ND (0.00058)	ND (0.00059)	ND (0.00047)	ND (0.0011)
Methylene chloride	mg/kg	97	0.0012 J	0.0013 J	ND (0.0011)	0.0012 J	ND (0.0012)	ND (0.0013)	ND (0.0010)	ND (0.0023)
Styrene	mg/kg	260	ND (0.00020)	ND (0.00023)	ND (0.00020)	ND (0.00016)	ND (0.00023)	ND (0.00023)	ND (0.00018)	ND (0.00043)
1,1,2,2-Tetrachloroethane	mg/kg	3	ND (0.00019)	ND (0.00022)	ND (0.00020)	ND (0.00015)	ND (0.00022)	ND (0.00022)	ND (0.00018)	ND (0.00042)
Tetrachloroethene	mg/kg	5	ND (0.00033)	ND (0.00038)	ND (0.00035)	ND (0.00026)	ND (0.00038)	ND (0.00039)	ND (0.00031)	ND (0.00072)
Toluene	mg/kg	91000	0.0067	0.0054	0.0062	0.0069	0.0058	0.0074	0.0035	0.0062
1,2,3-Trichlorobenzene	mg/kg	-	ND (0.00019)	ND (0.00022)	ND (0.00020)	ND (0.00015)	ND (0.00022)	ND (0.00023)	ND (0.00018)	ND (0.00042)
1,2,4-Trichlorobenzene	mg/kg	820	ND (0.00019)	ND (0.00021)	ND (0.00019)	ND (0.00015)	ND (0.00021)	ND (0.00022)	ND (0.00017)	0.0011 J
1,1,1-Trichloroethane	mg/kg	4200	ND (0.00016)	ND (0.00019)	ND (0.00017)	ND (0.00013)	ND (0.00019)	ND (0.00019)	ND (0.00015)	ND (0.00036)
1,1,2-Trichloroethane	mg/kg	6	ND (0.00016)	ND (0.00019)	ND (0.00017)	ND (0.00013)	ND (0.00019)	ND (0.00019)	ND (0.00015)	ND (0.00035)
Trichloroethene	mg/kg	20	ND (0.00016)	ND (0.00019)	ND (0.00017)	ND (0.00013)	ND (0.00019)	ND (0.00019)	ND (0.00015)	ND (0.00035)
Trichlorofluoromethane	mg/kg	340000	ND (0.00027)	ND (0.00032)	ND (0.00029)	ND (0.00022)	ND (0.00031)	ND (0.00032)	ND (0.00025)	ND (0.00060)
Vinyl chloride	mg/kg	2	ND (0.00022)	ND (0.00025)	ND (0.00023)	ND (0.00017)	ND (0.00025)	ND (0.00025)	ND (0.00020)	ND (0.00047)
m,p-Xylene	mg/kg	170000	ND (0.00039)	0.0027	ND (0.00040)	ND (0.00031)	ND (0.00045)	0.0023	ND (0.00036)	0.0067
o-Xylene	mg/kg	170000	ND (0.00030)	0.0059	ND (0.00031)	ND (0.00024)	ND (0.00035)	0.0062	ND (0.00028)	0.0332
Xylene (total)	mg/kg	170000	ND (0.00030)	0.0086	ND (0.00031)	ND (0.00024)	ND (0.00035)	0.0085	ND (0.00028)	0.0398
GC/MS Volatile TIC										
Total TIC, Volatile	mg/kg	-	0	0.2099 J	0	0	0.031 J	0.177 J	0	0.049 J
Total Alkanes	mg/kg	-	0	0.0509 J	0	0	0	0.044 J	0	0



Table 4-1  
Hess Corporation - Former Port Reading Complex (HC-PR) - 750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Sample Results - AOC 35 - No. 1 Landfarm Discharge Sumps

Client Sample ID:		NJ Non-Residential Direct Contact Soil	ILF-SS-1	ILF-SS-1A	ILF-SS-2	ILF-SS-2A	ILF-SS-3	ILF-SS-3A	ILF-SS-4	ILF-SS-4A
Lab Sample ID:			JB99944-12	JB99944-13	JB99944-10	JB99944-11	JB99944-7	JB99944-6	JB99944-8	JB99944-9
Date Sampled:			7/23/2015	7/23/2015	7/23/2015	7/23/2015	7/23/2015	7/23/2015	7/23/2015	7/23/2015
Sample Depth:			6.0-6.5	13.0-13.5	6.0-6.5	13.0-13.5	6.0-6.5	13.0-13.5	6.0-6.5	13.0-13.5
Matrix:			Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
<b>GC/MS Semi-volatiles (SW846 8270D)</b>										
2-Chlorophenol	mg/kg	2200	ND (0.067)	ND (0.088)	ND (0.072)	ND (0.075)	ND (0.17)	ND (0.090)	ND (0.074)	ND (0.13)
4-Chloro-3-methyl phenol	mg/kg	-	ND (0.17)	ND (0.22)	ND (0.18)	ND (0.19)	ND (0.43)	ND (0.22)	ND (0.19)	ND (0.32)
2,4-Dichlorophenol	mg/kg	2100	ND (0.17)	ND (0.22)	ND (0.18)	ND (0.19)	ND (0.43)	ND (0.22)	ND (0.19)	ND (0.32)
2,4-Dimethylphenol	mg/kg	14000	ND (0.17)	ND (0.22)	ND (0.18)	ND (0.19)	ND (0.43)	ND (0.22)	ND (0.19)	ND (0.32)
2,4-Dinitrophenol	mg/kg	1400	ND (0.17)	ND (0.22)	ND (0.18)	ND (0.19)	ND (0.43)	ND (0.22)	ND (0.19)	ND (0.32)
4,6-Dinitro-o-cresol	mg/kg	68	ND (0.17)	ND (0.22)	ND (0.18)	ND (0.19)	ND (0.43)	ND (0.22)	ND (0.19)	ND (0.32)
2-Methylphenol	mg/kg	3400	ND (0.067)	ND (0.088)	ND (0.072)	ND (0.075)	ND (0.17)	ND (0.090)	ND (0.074)	ND (0.13)
3,8,4-Methylphenol	mg/kg	-	ND (0.067)	ND (0.088)	ND (0.072)	ND (0.075)	ND (0.17)	ND (0.090)	ND (0.074)	ND (0.13)
2-Nitrophenol	mg/kg	-	ND (0.17)	ND (0.22)	ND (0.18)	ND (0.19)	ND (0.43)	ND (0.22)	ND (0.19)	ND (0.32)
4-Nitrophenol	mg/kg	-	ND (0.33)	ND (0.44)	ND (0.36)	ND (0.38)	ND (0.85)	ND (0.45)	ND (0.37)	ND (0.63)
Pentachlorophenol	mg/kg	10	ND (0.17)	ND (0.22)	ND (0.18)	ND (0.19)	ND (0.43)	ND (0.22)	ND (0.19)	ND (0.32)
Phenol	mg/kg	210000	ND (0.067)	ND (0.088)	ND (0.072)	ND (0.075)	ND (0.17)	ND (0.090)	ND (0.074)	ND (0.13)
2,3,4,6-Tetrachlorophenol	mg/kg	-	ND (0.17)	ND (0.22)	ND (0.18)	ND (0.19)	ND (0.43)	ND (0.22)	ND (0.19)	ND (0.32)
2,4,5-Trichlorophenol	mg/kg	68000	ND (0.17)	ND (0.22)	ND (0.18)	ND (0.19)	ND (0.43)	ND (0.22)	ND (0.19)	ND (0.32)
2,4,6-Trichlorophenol	mg/kg	74	ND (0.17)	ND (0.22)	ND (0.18)	ND (0.19)	ND (0.43)	ND (0.22)	ND (0.19)	ND (0.32)
Acenaphthene	mg/kg	37000	ND (0.033)	0.554	ND (0.036)	ND (0.038)	0.0663 J	0.134	ND (0.037)	0.104
Acenaphthylene	mg/kg	300000	ND (0.033)	0.0218 J	ND (0.036)	ND (0.038)	ND (0.085)	0.0336 J	ND (0.037)	ND (0.063)
Acetophenone	mg/kg	5	ND (0.17)	ND (0.22)	ND (0.18)	ND (0.19)	ND (0.43)	ND (0.22)	ND (0.19)	ND (0.32)
Anthracene	mg/kg	30000	ND (0.033)	0.686	ND (0.036)	ND (0.038)	0.17	0.168	ND (0.037)	0.0598 J
Atrazine	mg/kg	2400	ND (0.067)	ND (0.088)	ND (0.072)	ND (0.075)	ND (0.17)	ND (0.090)	ND (0.074)	ND (0.13)
Benzo(a)anthracene	mg/kg	2	ND (0.033)	0.585	ND (0.036)	0.0280 J	0.281	0.232	0.0615	0.0429 J
Benzo(a)pyrene	mg/kg	0.2	ND (0.033)	0.444	ND (0.036)	0.0277 J	0.277	0.136	0.057	ND (0.063)
Benzo(b)fluoranthene	mg/kg	2	ND (0.033)	0.449	ND (0.036)	0.0231 J	0.307	0.16	0.0322 J	0.0368 J
Benzo(g,h,i)perylene	mg/kg	30000	ND (0.033)	0.217	ND (0.036)	ND (0.038)	0.142	0.0737	0.0299 J	0.0304 J
Benzo(k)fluoranthene	mg/kg	23	ND (0.033)	0.147	ND (0.036)	0.0156 J	0.0962	0.0659	ND (0.037)	ND (0.063)
4-Bromophenyl phenyl ether	mg/kg	-	ND (0.067)	ND (0.088)	ND (0.072)	ND (0.075)	ND (0.17)	ND (0.090)	ND (0.074)	ND (0.13)
Butyl benzyl phthalate	mg/kg	14000	ND (0.067)	ND (0.088)	ND (0.072)	ND (0.075)	ND (0.17)	ND (0.090)	ND (0.074)	ND (0.13)
1,1'-Biphenyl	mg/kg	34000	ND (0.067)	ND (0.088)	ND (0.072)	ND (0.075)	ND (0.17)	ND (0.090)	ND (0.074)	ND (0.13)
Benzaldehyde	mg/kg	68000	ND (0.17)	ND (0.22)	ND (0.18)	ND (0.19)	ND (0.43)	ND (0.22)	ND (0.19)	ND (0.32)
2-Chloronaphthalene	mg/kg	-	ND (0.067)	ND (0.088)	ND (0.072)	ND (0.075)	ND (0.17)	ND (0.090)	ND (0.074)	ND (0.13)
4-Chloroaniline	mg/kg	-	ND (0.17)	ND (0.22)	ND (0.18)	ND (0.19)	ND (0.43)	ND (0.22)	ND (0.19)	ND (0.32)
Carbazole	mg/kg	96	ND (0.067)	0.16	ND (0.072)	ND (0.075)	0.0607 J	ND (0.090)	ND (0.074)	ND (0.13)
Caprolactam	mg/kg	340000	ND (0.067)	ND (0.088)	ND (0.072)	ND (0.075)	ND (0.17)	ND (0.090)	ND (0.074)	ND (0.13)
Chrysene	mg/kg	230	ND (0.033)	0.521	ND (0.036)	0.0226 J	0.29	0.237	0.142	0.0394 J
bis(2-Chloroethoxy)methane	mg/kg	-	ND (0.067)	ND (0.088)	ND (0.072)	ND (0.075)	ND (0.17)	ND (0.090)	ND (0.074)	ND (0.13)
bis(2-Chloroethyl)ether	mg/kg	2	ND (0.067)	ND (0.088)	ND (0.072)	ND (0.075)	ND (0.17)	ND (0.090)	ND (0.074)	ND (0.13)
bis(2-Chloroisopropyl)ether	mg/kg	67	ND (0.067)	ND (0.088)	ND (0.072)	ND (0.075)	ND (0.17)	ND (0.090)	ND (0.074)	ND (0.13)
4-Chlorophenyl phenyl ether	mg/kg	-	ND (0.067)	ND (0.088)	ND (0.072)	ND (0.075)	ND (0.17)	ND (0.090)	ND (0.074)	ND (0.13)
2,4-Dinitrotoluene	mg/kg	3	ND (0.033)	ND (0.044)	ND (0.036)	ND (0.038)	ND (0.085)	ND (0.045)	ND (0.037)	ND (0.063)
2,6-Dinitrotoluene	mg/kg	3	ND (0.033)	ND (0.044)	ND (0.036)	ND (0.038)	ND (0.085)	ND (0.045)	ND (0.037)	ND (0.063)
3,3'-Dichlorobenzidine	mg/kg	4	ND (0.067)	ND (0.088)	ND (0.072)	ND (0.075)	ND (0.17)	ND (0.090)	ND (0.074)	ND (0.13)
1,4-Dioxane	mg/kg	-	ND (0.033)	ND (0.044)	ND (0.036)	ND (0.038)	ND (0.085)	ND (0.045)	ND (0.037)	ND (0.063)
Dibenzo(a,h)anthracene	mg/kg	0.2	ND (0.033)	0.0605	ND (0.036)	ND (0.038)	ND (0.085)	0.0213 J	0.0159 J	ND (0.063)
Dibenzofuran	mg/kg	-	ND (0.067)	0.122	ND (0.072)	ND (0.075)	ND (0.17)	0.0189 J	ND (0.074)	0.0363 J
Di-n-butyl phthalate	mg/kg	68000	ND (0.067)	ND (0.088)	ND (0.072)	ND (0.075)	ND (0.17)	ND (0.090)	ND (0.074)	ND (0.13)
Di-n-octyl phthalate	mg/kg	27000	ND (0.067)	ND (0.088)	ND (0.072)	ND (0.075)	ND (0.17)	ND (0.090)	ND (0.074)	ND (0.13)
Diethyl phthalate	mg/kg	550000	ND (0.067)	ND (0.088)	ND (0.072)	ND (0.075)	ND (0.17)	ND (0.090)	ND (0.074)	ND (0.13)
Dimethyl phthalate	mg/kg	-	ND (0.067)	ND (0.088)	ND (0.072)	ND (0.075)	ND (0.17)	ND (0.090)	ND (0.074)	ND (0.13)
bis(2-Ethylhexyl)phthalate	mg/kg	140	ND (0.067)	0.0968	ND (0.072)	ND (0.075)	0.168 J	0.235	ND (0.074)	0.0815 J
Fluoranthene	mg/kg	24000	ND (0.033)	1.89	ND (0.036)	0.0408	0.512	0.796	ND (0.037)	0.123
Fluorene	mg/kg	24000	ND (0.033)	0.427	ND (0.036)	ND (0.038)	ND (0.085)	0.0802	ND (0.037)	0.0738
Hexachlorobenzene	mg/kg	1	ND (0.067)	ND (0.088)	ND (0.072)	ND (0.075)	ND (0.17)	ND (0.090)	ND (0.074)	ND (0.13)
Hexachlorobutadiene	mg/kg	25	ND (0.033)	ND (0.044)	ND (0.036)	ND (0.038)	ND (0.085)	ND (0.045)	ND (0.037)	ND (0.063)
Hexachlorocyclopentadiene	mg/kg	110	ND (0.33)	ND (0.44)	ND (0.36)	ND (0.38)	ND (0.85)	ND (0.45)	ND (0.37)	ND (0.63)
Hexachloroethane	mg/kg	140	ND (0.17)	ND (0.22)	ND (0.18)	ND (0.19)	ND (0.43)	ND (0.22)	ND (0.19)	ND (0.32)
Indeno(1,2,3-cd)pyrene	mg/kg	2	ND (0.033)	0.245	ND (0.036)	0.0152 J	0.168	0.0708	0.0205 J	ND (0.063)
Isophorone	mg/kg	2000	ND (0.067)	ND (0.088)	ND (0.072)	ND (0.075)	ND (0.17)	ND (0.090)	ND (0.074)	ND (0.13)
2-Methylnaphthalene	mg/kg	2400	ND (0.067)	0.0584 J	ND (0.072)	ND (0.075)	ND (0.17)	ND (0.090)	ND (0.074)	0.0452 J
2-Nitroaniline	mg/kg	23000	ND (0.17)	ND (0.22)	ND (0.18)	ND (0.19)	ND (0.43)	ND (0.22)	ND (0.19)	ND (0.32)
3-Nitroaniline	mg/kg	-	ND (0.17)	ND (0.22)	ND (0.18)	ND (0.19)	ND (0.43)	ND (0.22)	ND (0.19)	ND (0.32)
4-Nitroaniline	mg/kg	-	ND (0.17)	ND (0.22)	ND (0.18)	ND (0.19)	ND (0.43)	ND (0.22)	ND (0.19)	ND (0.32)
Naphthalene	mg/kg	17	ND (0.033)	0.124	ND (0.036)	ND (0.038)	0.0383 J	0.0417 J	ND (0.037)	0.087
Nitrobenzene	mg/kg	340	ND (0.067)	ND (0.088)	ND (0.072)	ND (0.075)	ND (0.17)	ND (0.090)	ND (0.074)	ND (0.13)
N-Nitroso-di-n-propylamine	mg/kg	0.3	ND (0.067)	ND (0.088)	ND (0.072)	ND (0.075)	ND (0.17)	ND (0.090)	ND (0.074)	ND (0.13)
N-Nitrosodiphenylamine	mg/kg	390	ND (0.17)	ND (0.22)	ND (0.18)	ND (0.19)	ND (0.43)	ND (0.22)	ND (0.19)	ND (0.32)
Phenanthrene	mg/kg	300000	ND (0.033)	1.46	ND (0.036)	0.0283 J	0.375	0.0928	0.0171 J	0.112
Pyrene	mg/kg	18000	ND (0.033)	1.86	ND (0.036)	0.0419	0.529	1	0.0688	0.147
1,2,4,5-Tetrachlorobenzene	mg/kg	-	ND (0.17)	ND (0.22)	ND (0.18)	ND (0.19)	ND (0.43)	ND (0.22)	ND (0.19)	ND (0.32)

Table 4-1

Client Sample ID:		NJ Non-Residential Direct Contact Soil	ILF-SS-1	ILF-SS-1A	ILF-SS-2	ILF-SS-2A	ILF-SS-3	ILF-SS-3A	ILF-SS-4	ILF-SS-4A
Lab Sample ID:			JB99944-12	JB99944-13	JB99944-10	JB99944-11	JB99944-7	JB99944-6	JB99944-8	JB99944-9
Date Sampled:			7/23/2015	7/23/2015	7/23/2015	7/23/2015	7/23/2015	7/23/2015	7/23/2015	7/23/2015
Sample Depth:			6.0-6.5	13.0-13.5	6.0-6.5	13.0-13.5	6.0-6.5	13.0-13.5	6.0-6.5	13.0-13.5
Matrix:			Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
GC/MS Semi-volatile TIC										
Total TIC, Semi-Volatile	mg/kg	-	0	4.48 J	0	0	0.36 J	6.77 J	3.94 J	0.86 J
Total Alkanes	mg/kg	-	0	1.04 J	0	0	0	0	0	0.33 J
GC Semi-volatiles (SW846 8082A)										
Aroclor 1016	mg/kg	1	ND (0.010)	ND (0.013)	ND (0.011)	ND (0.011)	ND (0.014)	ND (0.013)	ND (0.012)	ND (0.019)
Aroclor 1221	mg/kg	1	ND (0.019)	ND (0.025)	ND (0.020)	ND (0.021)	ND (0.026)	ND (0.024)	ND (0.022)	ND (0.035)
Aroclor 1232	mg/kg	1	ND (0.011)	ND (0.014)	ND (0.011)	ND (0.012)	ND (0.015)	ND (0.014)	ND (0.012)	ND (0.020)
Aroclor 1242	mg/kg	1	ND (0.015)	ND (0.019)	ND (0.016)	ND (0.016)	ND (0.020)	ND (0.019)	ND (0.017)	ND (0.027)
Aroclor 1248	mg/kg	1	ND (0.010)	ND (0.013)	ND (0.011)	ND (0.011)	ND (0.014)	ND (0.013)	ND (0.012)	ND (0.018)
Aroclor 1254	mg/kg	1	ND (0.015)	ND (0.019)	ND (0.015)	ND (0.016)	ND (0.020)	ND (0.018)	ND (0.017)	ND (0.027)
Aroclor 1260	mg/kg	1	ND (0.014)	ND (0.018)	ND (0.015)	ND (0.015)	ND (0.019)	ND (0.017)	ND (0.016)	ND (0.025)
Aroclor 1268	mg/kg	1	ND (0.010)	ND (0.013)	ND (0.011)	ND (0.011)	ND (0.014)	ND (0.013)	ND (0.012)	ND (0.019)
Aroclor 1262	mg/kg	1	ND (0.0093)	ND (0.012)	ND (0.0098)	ND (0.010)	ND (0.013)	ND (0.012)	ND (0.011)	ND (0.017)
Metals Analysis										
Aluminum	mg/kg	NA	3580	10300	4000	4040	10300	6720	6630	26300
Antimony	mg/kg	450	<2.1	<2.6	<2.2	<2.3	<2.7	<2.7	<2.2	<3.8
Arsenic	mg/kg	19	11.1	47.7	10.3	9	19.2	24.1	16.3	232
Barium	mg/kg	59000	<21	199	41.7	25.2	137	126	50	496
Beryllium	mg/kg	140	0.44	0.72	0.64	0.58	0.74	0.52	0.76	2.3
Cadmium	mg/kg	78	<0.53	1.8	<0.55	<0.57	0.8	0.73	<0.55	3.5
Calcium	mg/kg	-	<530	2460	<550	<570	1930	1030	1320	23100
Chromium	mg/kg	-	47.8	70.7	19.9	25.1	38.1	35.5	28.1	161
Chromium, Hexavalent	mg/kg	-	-	-	-	-	-	-	-	-
Cobalt	mg/kg	590	6.1	8.5	6.3	<5.7	10.6	<6.7	8.4	17.1
Copper	mg/kg	45000	23.5	194	30.5	9.1	69.3	83.6	36.7	512
Iron	mg/kg	-	29100	29600	34800	30900	32500	28500	36300	43800
Lead	mg/kg	800	6.7	104	11.6	4.9	33.7	42.3	27.3	362
Magnesium	mg/kg	-	1540	3320	1310	1750	3920	2300	1570	5220
Manganese	mg/kg	5900	180	537	366	172	241	390	150	1430
Mercury	mg/kg	65	<0.034	1.7	0.042	<0.036	0.48	1.9	0.14	5.6
Nickel	mg/kg	23000	11.9	22.6	14.3	12.1	22	15.3	19.7	62
Potassium	mg/kg	-	<1100	2050	<1100	1330	2110	1420	<1100	3730
Selenium	mg/kg	5700	<2.1	3.2	<2.2	<2.3	<2.7	<2.7	<2.2	9.1
Silver	mg/kg	5700	<0.53	1.4	<0.55	<0.57	<0.67	0.75	<0.55	3.4
Sodium	mg/kg	-	<1100	<1300	<1100	<1100	<1300	<1300	<1100	1950
Thallium	mg/kg	79	<1.1	<1.3	<1.1	<1.1	<1.3	<1.3	<1.1	<1.9
Vanadium	mg/kg	1100	23.5	36.9	30.7	32.8	37.9	32	63.4	127
Zinc	mg/kg	110000	43.6	160	65.5	37.8	86.6	80.7	63	469
General Chemistry										
Solids, Percent	%	-	92.8	74.4	88.9	87.5	74.6	73.6	87.7	52.3
All results in mg/kg unless otherwise noted.										
								milligrams per kilogram	mg/kg	
								Estimated Value	J	
								Not Sampled	NS	
								Not Detected	ND	
								Not Analyzed	NA	
								Method Detection Limit	()	
								Compound Found in Blank	B	
								Health based standard defaults to soil saturation limit	**	
Exceeds NJDEP Non-Residential Soil Remediation Standard								Result is from 2nd run	a b	

Table 4-1  
Former Hess Terminal - 750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Sample Results at AOC 38 - Former Ammonia Truck Loading Rack

Client Sample ID:		NJ Non-Residential Direct Contact Soil	NH3-SS-1	NH3-SS-2	NH3-SS-2	NH3-SS-2	NH3-SS-2	NH3-SS-2	NH3-SS-3	NH3-SS-4	NH3-SS-5	NH3-SS-6
Lab Sample ID:			JB98904-4	JB98904-5	JB99944-14	JC2396-4	JC2396-4RT	JB98904-6	JB98904-7	JB98904-3	JB98904-8	
Date Sampled:			7/9/2015	7/9/2015	7/23/2015	8/26/2015	8/26/2015	7/9/2015	7/9/2015	7/9/2015	7/9/2015	
Sample Depth:			4.5-5.0 ft	4.5-5.0 ft	4.5-5.0 ft	4.5-5.0 ft	4.5-5.0 ft	6.5-7.0 ft	3.5-4.0 ft	4.5-5.0 ft	4.5-5.0 ft	
Matrix:			Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
GC/MS Volatiles (SW846 8260C)												
Acetone	mg/kg	NA	-	-	0.0307	0.0588	-	-	-	-	-	-
Benzene	mg/kg	5	-	-	ND (0.00052)	0.00027 J	-	-	-	-	-	-
Bromochloromethane	mg/kg	-	-	-	ND (0.0052)	ND (0.0068)	-	-	-	-	-	-
Bromodichloromethane	mg/kg	3	-	-	ND (0.0021)	ND (0.0027)	-	-	-	-	-	-
Bromoform	mg/kg	280	-	-	ND (0.0052)	ND (0.0068)	-	-	-	-	-	-
Bromomethane	mg/kg	59	-	-	ND (0.0052)	ND (0.0068)	-	-	-	-	-	-
2-Butanone (MEK)	mg/kg	44000	-	-	0.0061 J	0.015	-	-	-	-	-	-
Carbon disulfide	mg/kg	110000	-	-	0.0015 J	ND (0.0027)	-	-	-	-	-	-
Carbon tetrachloride	mg/kg	2	-	-	ND (0.0021)	ND (0.0027)	-	-	-	-	-	-
Chlorobenzene	mg/kg	7400	-	-	ND (0.0021)	ND (0.0027)	-	-	-	-	-	-
Chloroethane	mg/kg	1100	-	-	ND (0.0052)	ND (0.0068)	-	-	-	-	-	-
Chloroform	mg/kg	2	-	-	ND (0.0021)	ND (0.0027)	-	-	-	-	-	-
Chloromethane	mg/kg	12	-	-	ND (0.0052)	ND (0.0068)	-	-	-	-	-	-
Cyclohexane	mg/kg	-	-	-	ND (0.0021)	ND (0.0027)	-	-	-	-	-	-
1,2-Dibromo-3-chloropropane	mg/kg	0.2	-	-	ND (0.0021)	ND (0.0027)	-	-	-	-	-	-
Dibromochloromethane	mg/kg	8	-	-	ND (0.0021)	ND (0.0027)	-	-	-	-	-	-
1,2-Dibromoethane	mg/kg	0.04	-	-	ND (0.0010)	ND (0.0014)	-	-	-	-	-	-
1,2-Dichlorobenzene	mg/kg	59000	-	-	ND (0.0010)	0.00027 J	-	-	-	-	-	-
1,3-Dichlorobenzene	mg/kg	59000	-	-	ND (0.0010)	0.00033 J	-	-	-	-	-	-
1,4-Dichlorobenzene	mg/kg	13	-	-	ND (0.0010)	0.00080 J	-	-	-	-	-	-
Dichlorodifluoromethane	mg/kg	230000	-	-	ND (0.0052)	ND (0.0068)	-	-	-	-	-	-
1,1-Dichloroethane	mg/kg	24	-	-	ND (0.0010)	ND (0.0014)	-	-	-	-	-	-
1,2-Dichloroethane	mg/kg	3	-	-	ND (0.0010)	ND (0.0014)	-	-	-	-	-	-
1,1-Dichloroethene	mg/kg	150	-	-	ND (0.0010)	ND (0.0014)	-	-	-	-	-	-
cis-1,2-Dichloroethene	mg/kg	560	-	-	ND (0.0010)	ND (0.0014)	-	-	-	-	-	-
trans-1,2-Dichloroethene	mg/kg	720	-	-	ND (0.0010)	ND (0.0014)	-	-	-	-	-	-
1,2-Dichloropropane	mg/kg	5	-	-	ND (0.0021)	ND (0.0027)	-	-	-	-	-	-
cis-1,3-Dichloropropene	mg/kg	7	-	-	ND (0.0021)	ND (0.0027)	-	-	-	-	-	-
trans-1,3-Dichloropropene	mg/kg	7	-	-	ND (0.0021)	ND (0.0027)	-	-	-	-	-	-
Ethylbenzene	mg/kg	110000	-	-	ND (0.0010)	0.00033 J	-	-	-	-	-	-
Freon 113	mg/kg	-	-	-	ND (0.0052)	ND (0.0068)	-	-	-	-	-	-
2-Hexanone	mg/kg	-	-	-	ND (0.0052)	ND (0.0068)	-	-	-	-	-	-
Isopropylbenzene	mg/kg	-	-	-	ND (0.0021)	ND (0.0027)	-	-	-	-	-	-
Methyl Acetate	mg/kg	NA	-	-	ND (0.0052)	ND (0.0068)	-	-	-	-	-	-
Methylcyclohexane	mg/kg	-	-	-	ND (0.0021)	ND (0.0027)	-	-	-	-	-	-
Methyl Tert Butyl Ether	mg/kg	320	-	-	ND (0.0010)	ND (0.0014)	-	-	-	-	-	-
4-Methyl-2-pentanone(MIBK)	mg/kg	-	-	-	ND (0.0052)	ND (0.0068)	-	-	-	-	-	-
Methylene chloride	mg/kg	97	-	-	ND (0.0052)	0.0014 J	-	-	-	-	-	-
Styrene	mg/kg	260	-	-	ND (0.0021)	ND (0.0027)	-	-	-	-	-	-
Tert Butyl Alcohol	mg/kg	11000	-	-	ND (0.026)	ND (0.034)	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	mg/kg	3	-	-	ND (0.0021)	ND (0.0027)	-	-	-	-	-	-
Tetrachloroethene	mg/kg	5	-	-	ND (0.0021)	ND (0.0027)	-	-	-	-	-	-
Toluene	mg/kg	91000	-	-	0.004	0.00028 J	-	-	-	-	-	-
1,2,3-Trichlorobenzene	mg/kg	-	-	-	ND (0.0052)	ND (0.0068)	-	-	-	-	-	-
1,2,4-Trichlorobenzene	mg/kg	820	-	-	ND (0.0052)	ND (0.0068)	-	-	-	-	-	-
1,1,1-Trichloroethane	mg/kg	4200	-	-	ND (0.0021)	ND (0.0027)	-	-	-	-	-	-
1,1,2-Trichloroethane	mg/kg	6	-	-	ND (0.0021)	ND (0.0027)	-	-	-	-	-	-
Trichloroethene	mg/kg	20	-	-	ND (0.0010)	ND (0.0014)	-	-	-	-	-	-
Trichlorofluoromethane	mg/kg	340000	-	-	ND (0.0052)	ND (0.0068)	-	-	-	-	-	-
Vinyl chloride	mg/kg	2	-	-	ND (0.0021)	ND (0.0027)	-	-	-	-	-	-
m,p-Xylene	mg/kg	170000	-	-	ND (0.0010)	0.00085 J	-	-	-	-	-	-
o-Xylene	mg/kg	170000	-	-	ND (0.0010)	0.00050 J	-	-	-	-	-	-
Xylene (total)	mg/kg	170000	-	-	ND (0.0010)	0.0013 J	-	-	-	-	-	-
GC/MS Volatile TIC												
Total TIC, Volatile	mg/kg	-	-	-	0.013 J	0	-	-	-	-	-	-
Total Alkanes	mg/kg	-	-	-	0	0	-	-	-	-	-	-

Table 4-1  
Former Hess Terminal - 750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Sample Results at AOC 38 - Former Ammonia Truck Loading Rack

Client Sample ID:		NJ Non-Residential Direct Contact Soil	NH3-SS-1	NH3-SS-2	NH3-SS-2	NH3-SS-2	NH3-SS-2	NH3-SS-2	NH3-SS-3	NH3-SS-4	NH3-SS-5	NH3-SS-6
Lab Sample ID:			JB98904-4	JB98904-5	JB99944-14	JC2396-4	JC2396-4RT	JB98904-6	JB98904-7	JB98904-3	JB98904-8	
Date Sampled:			7/9/2015	7/9/2015	7/23/2015	8/26/2015	8/26/2015	7/9/2015	7/9/2015	7/9/2015	7/9/2015	
Sample Depth:			4.5-5.0 ft	4.5-5.0 ft	4.5-5.0 ft	4.5-5.0 ft	4.5-5.0 ft	6.5-7.0 ft	3.5-4.0 ft	4.5-5.0 ft	4.5-5.0 ft	
Matrix:			Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
<b>GC/MS Semi-volatiles (SW846 8270D)</b>												
2-Chlorophenol	mg/kg	2200	-	-	-	ND (0.088)	-	-	-	-	-	-
4-Chloro-3-methyl phenol	mg/kg	-	-	-	-	ND (0.22)	-	-	-	-	-	-
2,4-Dichlorophenol	mg/kg	2100	-	-	-	ND (0.22)	-	-	-	-	-	-
2,4-Dimethylphenol	mg/kg	14000	-	-	-	ND (0.22)	-	-	-	-	-	-
2,4-Dinitrophenol	mg/kg	1400	-	-	-	ND (0.22)	-	-	-	-	-	-
4,6-Dinitro-o-cresol	mg/kg	68	-	-	-	ND (0.22)	-	-	-	-	-	-
2-Methylphenol	mg/kg	3400	-	-	-	ND (0.088)	-	-	-	-	-	-
3&4-Methylphenol	mg/kg	-	-	-	-	ND (0.088)	-	-	-	-	-	-
2-Nitrophenol	mg/kg	-	-	-	-	ND (0.22)	-	-	-	-	-	-
4-Nitrophenol	mg/kg	-	-	-	-	ND (0.44)	-	-	-	-	-	-
Pentachlorophenol	mg/kg	10	-	-	-	ND (0.22)	-	-	-	-	-	-
Phenol	mg/kg	210000	-	-	-	ND (0.088)	-	-	-	-	-	-
2,3,4,6-Tetrachlorophenol	mg/kg	-	-	-	-	ND (0.22)	-	-	-	-	-	-
2,4,5-Trichlorophenol	mg/kg	68000	-	-	-	ND (0.22)	-	-	-	-	-	-
2,4,6-Trichlorophenol	mg/kg	74	-	-	-	ND (0.22)	-	-	-	-	-	-
Acenaphthene	mg/kg	37000	-	-	-	ND (0.044)	-	-	-	-	-	-
Acenaphthylene	mg/kg	300000	-	-	-	0.0226 J	-	-	-	-	-	-
Acetophenone	mg/kg	5	-	-	-	ND (0.22)	-	-	-	-	-	-
Anthracene	mg/kg	30000	-	-	-	0.0233 J	-	-	-	-	-	-
Atrazine	mg/kg	2400	-	-	-	ND (0.088)	-	-	-	-	-	-
Benzo(a)anthracene	mg/kg	2	-	-	-	0.0400 J	-	-	-	-	-	-
Benzo(a)pyrene	mg/kg	0.2	-	-	-	0.0268 J	-	-	-	-	-	-
Benzo(b)fluoranthene	mg/kg	2	-	-	-	0.0703	-	-	-	-	-	-
Benzo(g,h,i)perylene	mg/kg	30000	-	-	-	0.0319 J	-	-	-	-	-	-
Benzo(k)fluoranthene	mg/kg	23	-	-	-	0.0218 J	-	-	-	-	-	-
4-Bromophenyl phenyl ether	mg/kg	-	-	-	-	ND (0.088)	-	-	-	-	-	-
Butyl benzyl phthalate	mg/kg	14000	-	-	-	ND (0.088)	-	-	-	-	-	-
1,1'-Biphenyl	mg/kg	34000	-	-	-	ND (0.088)	-	-	-	-	-	-
Benzaldehyde	mg/kg	68000	-	-	-	ND (0.22)	-	-	-	-	-	-
2-Chloronaphthalene	mg/kg	-	-	-	-	ND (0.088)	-	-	-	-	-	-
4-Chloroaniline	mg/kg	-	-	-	-	ND (0.22)	-	-	-	-	-	-
Carbazole	mg/kg	96	-	-	-	ND (0.088)	-	-	-	-	-	-
Caprolactam	mg/kg	340000	-	-	-	ND (0.088)	-	-	-	-	-	-
Chrysene	mg/kg	230	-	-	-	0.0774	-	-	-	-	-	-
bis(2-Chloroethoxy)methane	mg/kg	-	-	-	-	ND (0.088)	-	-	-	-	-	-
bis(2-Chloroethyl)ether	mg/kg	2	-	-	-	ND (0.088)	-	-	-	-	-	-
bis(2-Chloroisopropyl)ether	mg/kg	67	-	-	-	ND (0.088)	-	-	-	-	-	-
4-Chlorophenyl phenyl ether	mg/kg	-	-	-	-	ND (0.088)	-	-	-	-	-	-
2,4-Dinitrotoluene	mg/kg	3	-	-	-	ND (0.044)	-	-	-	-	-	-
2,6-Dinitrotoluene	mg/kg	3	-	-	-	ND (0.044)	-	-	-	-	-	-
3,3'-Dichlorobenzidine	mg/kg	4	-	-	-	ND (0.088)	-	-	-	-	-	-
1,4-Dioxane	mg/kg	-	-	-	-	ND (0.044)	-	-	-	-	-	-
Dibenzo(a,h)anthracene	mg/kg	0.2	-	-	-	ND (0.044)	-	-	-	-	-	-
Dibenzofuran	mg/kg	-	-	-	-	ND (0.088)	-	-	-	-	-	-
Di-n-butyl phthalate	mg/kg	68000	-	-	-	ND (0.088)	-	-	-	-	-	-
Di-n-octyl phthalate	mg/kg	27000	-	-	-	ND (0.088)	-	-	-	-	-	-
Diethyl phthalate	mg/kg	550000	-	-	-	ND (0.088)	-	-	-	-	-	-
Dimethyl phthalate	mg/kg	-	-	-	-	ND (0.088)	-	-	-	-	-	-
bis(2-Ethylhexyl)phthalate	mg/kg	140	-	-	-	0.259	-	-	-	-	-	-
Fluoranthene	mg/kg	24000	-	-	-	0.0611	-	-	-	-	-	-
Fluorene	mg/kg	24000	-	-	-	ND (0.044)	-	-	-	-	-	-
Hexachlorobenzene	mg/kg	1	-	-	-	ND (0.088)	-	-	-	-	-	-
Hexachlorobutadiene	mg/kg	25	-	-	-	ND (0.044)	-	-	-	-	-	-
Hexachlorocyclopentadiene	mg/kg	110	-	-	-	ND (0.44)	-	-	-	-	-	-
Hexachloroethane	mg/kg	140	-	-	-	ND (0.22)	-	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	2	-	-	-	0.0356 J	-	-	-	-	-	-
Isophorone	mg/kg	2000	-	-	-	ND (0.088)	-	-	-	-	-	-
2-Methylnaphthalene	mg/kg	2400	-	-	-	ND (0.088)	-	-	-	-	-	-
2-Nitroaniline	mg/kg	23000	-	-	-	ND (0.22)	-	-	-	-	-	-
3-Nitroaniline	mg/kg	-	-	-	-	ND (0.22)	-	-	-	-	-	-
4-Nitroaniline	mg/kg	-	-	-	-	ND (0.22)	-	-	-	-	-	-
Naphthalene	mg/kg	17	-	-	-	ND (0.044)	-	-	-	-	-	-
Nitrobenzene	mg/kg	340	-	-	-	ND (0.088)	-	-	-	-	-	-
N-Nitroso-di-n-propylamine	mg/kg	0.3	-	-	-	ND (0.088)	-	-	-	-	-	-
N-Nitrosodiphenylamine	mg/kg	390	-	-	-	ND (0.22)	-	-	-	-	-	-
Phenanthrene	mg/kg	300000	-	-	-	0.0243 J	-	-	-	-	-	-
Pyrene	mg/kg	18000	-	-	-	0.0676	-	-	-	-	-	-
1,2,4,5-Tetrachlorobenzene	mg/kg	-	-	-	-	ND (0.22)	-	-	-	-	-	-



Table 4-1  
Former Hess Terminal - 750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Sample Results at AOC 38 - Former Ammonia Truck Loading Rack

Client Sample ID:		NJ Non-Residential Direct Contact Soil	NH3-SS-1	NH3-SS-2	NH3-SS-2	NH3-SS-2	NH3-SS-2	NH3-SS-2	NH3-SS-3	NH3-SS-4	NH3-SS-5	NH3-SS-6
Lab Sample ID:			JB98904-4	JB98904-5	JB99944-14	JC2396-4	JC2396-4RT	JB98904-6	JB98904-7	JB98904-3	JB98904-8	
Date Sampled:			7/9/2015	7/9/2015	7/23/2015	8/26/2015	8/26/2015	7/9/2015	7/9/2015	7/9/2015	7/9/2015	
Sample Depth:			4.5-5.0 ft	4.5-5.0 ft	4.5-5.0 ft	4.5-5.0 ft	4.5-5.0 ft	6.5-7.0 ft	3.5-4.0 ft	4.5-5.0 ft	4.5-5.0 ft	
Matrix:			Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	
GC/MS Semi-volatile TIC												
Total TIC, Semi-Volatile	mg/kg	-	-	-	-	8.23 J	-	-	-	-	-	
Total Alkanes	mg/kg	-	-	-	-	0.8 J	-	-	-	-	-	
GC Semi-volatiles (NJDEP EPH)												
EPH (C9-C28)	mg/kg	-	194	713	-	-	-	ND (5.1)	ND (4.6)	ND (4.8)	25.8	
EPH (>C28-C40)	mg/kg	-	112	343	-	-	-	17.2	12.1	14.8	17	
Total EPH (C9-C40)	mg/kg	-	306	1060	-	-	-	17.2	12.1	14.8	42.8	
GC Semi-volatiles (SW846 8082A)												
Aroclor 1016	mg/kg	1	-	-	-	ND (0.046)	-	-	-	-	-	
Aroclor 1221	mg/kg	1	-	-	-	ND (0.046)	-	-	-	-	-	
Aroclor 1232	mg/kg	1	-	-	-	ND (0.046)	-	-	-	-	-	
Aroclor 1242	mg/kg	1	-	-	-	ND (0.046)	-	-	-	-	-	
Aroclor 1248	mg/kg	1	-	-	-	ND (0.046)	-	-	-	-	-	
Aroclor 1254	mg/kg	1	-	-	-	ND (0.046)	-	-	-	-	-	
Aroclor 1260	mg/kg	1	-	-	-	ND (0.046)	-	-	-	-	-	
Aroclor 1268	mg/kg	1	-	-	-	ND (0.046)	-	-	-	-	-	
Aroclor 1262	mg/kg	1	-	-	-	ND (0.046)	-	-	-	-	-	
Metals Analysis												
Aluminum	mg/kg	NA	-	-	-	16000	-	-	-	-	-	
Antimony	mg/kg	450	-	-	-	ND (5.6) <sup>a</sup>	-	-	-	-	-	
Arsenic	mg/kg	19	-	-	-	74.1 <sup>a</sup>	-	-	-	-	-	
Barium	mg/kg	59000	-	-	-	220	-	-	-	-	-	
Beryllium	mg/kg	140	-	-	-	0.77	-	-	-	-	-	
Cadmium	mg/kg	78	-	-	-	ND (1.4) <sup>a</sup>	-	-	-	-	-	
Calcium	mg/kg	-	-	-	-	1180	-	-	-	-	-	
Chromium	mg/kg	-	-	-	-	72.5	-	-	-	-	-	
Chromium, Hexavalent	mg/kg	-	-	-	-	-	ND (0.56)	-	-	-	-	
Cobalt	mg/kg	590	-	-	-	8.1	-	-	-	-	-	
Copper	mg/kg	45000	-	-	-	106 <sup>a</sup>	-	-	-	-	-	
Iron	mg/kg	-	-	-	-	62300	-	-	-	-	-	
Lead	mg/kg	800	-	-	-	118 <sup>a</sup>	-	-	-	-	-	
Magnesium	mg/kg	-	-	-	-	5370	-	-	-	-	-	
Manganese	mg/kg	5900	-	-	-	255 <sup>a</sup>	-	-	-	-	-	
Mercury	mg/kg	65	-	-	-	1.9	-	-	-	-	-	
Nickel	mg/kg	23000	-	-	-	24	-	-	-	-	-	
Potassium	mg/kg	-	-	-	-	4130	-	-	-	-	-	
Selenium	mg/kg	5700	-	-	-	ND (5.6) <sup>a</sup>	-	-	-	-	-	
Silver	mg/kg	5700	-	-	-	ND (1.4) <sup>a</sup>	-	-	-	-	-	
Sodium	mg/kg	-	-	-	-	1710	-	-	-	-	-	
Thallium	mg/kg	79	-	-	-	ND (2.8) <sup>a</sup>	-	-	-	-	-	
Vanadium	mg/kg	1100	-	-	-	85.6	-	-	-	-	-	
Zinc	mg/kg	110000	-	-	-	84.7 <sup>a</sup>	-	-	-	-	-	
General Chemistry												
Iron, Ferrous	%	-	-	-	-	-	-	-	-	-	-	
Nitrogen, Ammonia	mg/kg	-	63.2	36.6	-	-	-	72.9	11.9	36.6	6.6	
Redox Potential Vs H2	mv	-	-	-	-	385	-	-	-	-	-	
Solids, Percent	%	-	80	71.2	88.2	71.9	-	82.6	86.7	85.1	83.9	
Solids, Percent	%	-	-	-	-	-	-	-	-	-	-	
Sulfide Screen		-	-	-	-	-	-	-	-	-	-	
Sulfide, Neutral Extraction	mg/kg	-	-	-	-	-	-	-	-	-	-	
Total Organic Carbon	mg/kg	-	-	-	-	-	-	-	-	-	-	
pH	su	-	-	-	-	4.48	-	-	-	-	-	

<sup>a</sup> Elevated detection limit due to dilution required for high interfering element.

All results in mg/kg unless otherwise noted.

milligrams per kilogram	mg/kg
Estimated Value	J
Not Sampled	NS
Not Detected	ND
Not Analyzed	NA
Method Detection Limit	( )
Compound Found in Blank	B
Exceeds NJDEP Non-Residential Soil Remediation Standard	**
Health based standard defaults to soil saturation limit	

Client Sample ID:		NJ Non-Residential Direct Contact Soil	VRUPT1-SS-1	VRUPT1-SS-1	VRUPT1-SS-1	VRUPT1-SS-2	VRUPT1-SS-2	VRUPT1-SS-1	VRUPT1-SS-1	VRUPT1-SS-1	VRUPT1-SS-3	VRUPT1-SS-3	VRUPT1-SS-4	VRUPT1-SS-5	VRUPT1-SS-6	VRUPT1-SS-7	VRUPT1-SS-7
Lab Sample ID:			JB99429-3	JB99429-3R	JB99429-3T	JB99429-2	JB99429-2T	JC2396-1	JC2396-1R	JC2396-1RT	JB99429-5	JB99429-5T	JC3371-3	JC2112-2	JC2112-1	JC1987-5	JC1987-5T
Date Sampled:			7/16/2015	7/16/2015	7/16/2015	7/16/2015	7/16/2015	8/26/2015	8/26/2015	8/26/2015	7/16/2015	7/16/2015	9/8/2015	8/2/2015	8/2/2015	8/20/2015	8/20/2015
Matrix:			Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Depth:			1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft	5.0-5.5 ft	5.0-5.5 ft	2.0-2.5 ft	3.0-3.5 ft	4.0-4.5 ft	4.0-4.5 ft	4.0-4.5 ft
<b>GC/MS Volatiles (SW846 8260C)</b>																	
Acetone	mg/kg	NA	-	0.0165	-	-	-	ND (0.0089)	-	-	-	-	-	-	-	-	ND (0.72)
Benzene	mg/kg	5	-	0.00025 J	-	-	-	ND (0.00045)	-	-	-	-	-	-	-	-	17
Bromochloromethane	mg/kg	-	-	ND (0.00028)	-	-	-	ND (0.0045)	-	-	-	-	-	-	-	-	ND (0.36)
Bromodichloromethane	mg/kg	3	-	ND (0.00014)	-	-	-	ND (0.0018)	-	-	-	-	-	-	-	-	ND (0.14)
Bromoform	mg/kg	280	-	ND (0.00022)	-	-	-	ND (0.0045)	-	-	-	-	-	-	-	-	ND (0.36)
Bromomethane	mg/kg	59	-	ND (0.00033)	-	-	-	ND (0.0045)	-	-	-	-	-	-	-	-	ND (0.36)
2-Butanone (MEK)	mg/kg	44000	-	ND (0.0018)	-	-	-	ND (0.0089)	-	-	-	-	-	-	-	-	ND (0.72)
Carbon disulfide	mg/kg	110000	-	ND (0.00021)	-	-	-	ND (0.0018)	-	-	-	-	-	-	-	-	0.0914 J
Carbon tetrachloride	mg/kg	2	-	ND (0.00021)	-	-	-	ND (0.0018)	-	-	-	-	-	-	-	-	ND (0.14)
Chlorobenzene	mg/kg	7400	-	ND (0.00014)	-	-	-	ND (0.0018)	-	-	-	-	-	-	-	-	ND (0.14)
Chloroethane	mg/kg	1100	-	ND (0.00044)	-	-	-	ND (0.0045)	-	-	-	-	-	-	-	-	ND (0.36)
Chloroform	mg/kg	2	-	ND (0.00014)	-	-	-	ND (0.0018)	-	-	-	-	-	-	-	-	ND (0.14)
Chloromethane	mg/kg	12	-	ND (0.00024)	-	-	-	ND (0.0045)	-	-	-	-	-	-	-	-	ND (0.36)
Cyclohexane	mg/kg	-	-	0.00038 J	-	-	-	ND (0.0018)	-	-	-	-	-	-	-	-	3.7
1,2-Dibromo-3-chloropropane	mg/kg	0.2	-	ND (0.00050)	-	-	-	ND (0.0018)	-	-	-	-	-	-	-	-	ND (0.14)
Dibromochloromethane	mg/kg	8	-	ND (0.00019)	-	-	-	ND (0.0018)	-	-	-	-	-	-	-	-	ND (0.14)
1,2-Dibromoethane	mg/kg	0.04	-	ND (0.00012)	-	-	-	ND (0.00089)	-	-	-	-	-	-	-	-	ND (0.072)
1,2-Dichlorobenzene	mg/kg	59000	-	ND (0.00011)	-	-	-	ND (0.00089)	-	-	-	-	-	-	-	-	ND (0.072)
1,3-Dichlorobenzene	mg/kg	59000	-	ND (0.00014)	-	-	-	ND (0.00089)	-	-	-	-	-	-	-	-	ND (0.072)
1,4-Dichlorobenzene	mg/kg	13	-	ND (0.00021)	-	-	-	ND (0.00089)	-	-	-	-	-	-	-	-	ND (0.072)
Dichlorodifluoromethane	mg/kg	230000	-	ND (0.00033)	-	-	-	ND (0.0045)	-	-	-	-	-	-	-	-	ND (0.36)
1,1-Dichloroethane	mg/kg	2400	-	ND (0.00013)	-	-	-	ND (0.00089)	-	-	-	-	-	-	-	-	ND (0.072)
1,2-Dichloroethane	mg/kg	3	-														

Table 4-1

Client Sample ID:			NJ Non-Residential Direct Contact Soil	VRUP11-SS-1	VRUP11-SS-1	VRUP11-SS-1	VRUP11-SS-2	VRUP11-SS-2	VRUP11-SS-1	VRUP11-SS-1	VRUP11-SS-1	VRUP11-SS-3	VRUP11-SS-3	VRUP11-SS-4	VRUP11-SS-5	VRUP11-SS-6	VRUP11-SS-7	VRUP11-SS-7
Lab Sample ID:				JB99429-3	JB99429-3R	JB99429-3T	JB99429-2	JB99429-2T	JC2396-1	JC2396-1R	JC2396-1RT	JB99429-5	JB99429-5T	JC3371-3	JC2112-2	JC2112-1	JC1987-5	JC1987-5T
Date Sampled:				7/16/2015	7/16/2015	7/16/2015	7/16/2015	7/16/2015	8/26/2015	8/26/2015	8/26/2015	7/16/2015	7/16/2015	9/8/2015	8/21/2015	8/21/2015	8/20/2015	8/20/2015
Matrix:				Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Depth:				1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft	5.0-5.5 ft	5.0-5.5 ft	2.0-2.5 ft	3.0-3.5 ft	4.0-4.5 ft	4.0-4.5 ft	4.0-4.5 ft
GC/MS Semi-volatiles (SW846 8270D)																		
Acenaphthene	mg/kg	37000	-	-	0.0343 J	-	-	-	ND (0.34)	-	-	-	-	-	-	-	-	0.619
Acenaphthylene	mg/kg	300000	-	-	ND (0.0057)	-	-	-	ND (0.34)	-	-	-	-	-	-	-	-	ND (0.039)
2-Chlorophenol	mg/kg	2200	-	-	ND (0.034)	-	-	-	ND (0.69)	-	-	-	-	-	-	-	-	ND (0.078)
Anthracene	mg/kg	30000	-	-	ND (0.0085)	-	-	-	ND (0.34)	-	-	-	-	-	-	-	-	ND (0.039)
Benzo(a)anthracene	mg/kg	2	-	-	0.0231 J	-	-	-	ND (0.34)	-	-	-	-	-	-	-	-	0.0626
4-Chloro-3-methyl phenol	mg/kg	-	-	-	ND (0.071)	-	-	-	ND (1.7)	-	-	-	-	-	-	-	-	ND (0.19)
Benzo(a)pyrene	mg/kg	0.2	-	-	0.0182 J	-	-	-	ND (0.34)	-	-	-	-	-	-	-	-	0.0369 J
2,4-Dichlorophenol	mg/kg	2100	-	-	ND (0.070)	-	-	-	ND (1.7)	-	-	-	-	-	-	-	-	ND (0.19)
Benzo(b)fluoranthene	mg/kg	2	-	-	0.0263 J	-	-	-	ND (0.34)	-	-	-	-	-	-	-	-	0.0567
2,4-Dimethylphenol	mg/kg	14000	-	-	ND (0.083)	-	-	-	ND (1.7)	-	-	-	-	-	-	-	-	ND (0.19)
2,4-Dinitrophenol	mg/kg	1400	-	-	ND (0.16)	-	-	-	ND (1.7)	-	-	-	-	-	-	-	-	ND (0.19)
Benzo(g,h,i)perylene	mg/kg	30000	-	-	ND (0.013)	-	-	-	ND (0.34)	-	-	-	-	-	-	-	-	0.0220 J
Benzo(k)fluoranthene	mg/kg	23	-	-	ND (0.012)	-	-	-	ND (0.34)	-	-	-	-	-	-	-	-	0.0182 J
4,6-Dinitro-o-cresol	mg/kg	68	-	-	ND (0.031)	-	-	-	ND (1.7)	-	-	-	-	-	-	-	-	ND (0.19)
Chrysene	mg/kg	230	-	-	0.0233 J	-	-	-	ND (0.34)	-	-	-	-	-	-	-	-	0.0776
Dibenzo(a,h)anthracene	mg/kg	0.2	-	-	ND (0.0092)	-	-	-	ND (0.34)	-	-	-	-	-	-	-	-	ND (0.039)
Fluoranthene	mg/kg	24000	-	-	0.0381	-	-	-	0.167 J	-	-	-	-	-	-	-	-	0.204
2-Methylphenol	mg/kg	3400	-	-	ND (0.050)	-	-	-	ND (0.69)	-	-	-	-	-	-	-	-	ND (0.078)
3&4-Methylphenol	mg/kg	-	-	-	ND (0.042)	-	-	-	ND (0.69)	-	-	-	-	-	-	-	-	ND (0.078)
Fluorene	mg/kg	24000	-	-	0.0697	-	-	-	ND (0.34)	-	-	-	-	-	-	-	-	1.33
Indeno(1,2,3-cd)pyrene	mg/kg	2	-	-	ND (0.012)	-	-	-	ND (0.34)	-	-	-	-	-	-	-	-	0.0253 J
2-Nitrophenol	mg/kg	-	-	-	ND (0.034)	-	-	-	ND (1.7)	-	-	-	-	-	-	-	-	ND (0.19)
Naphthalene	mg/kg	17	-	-	0.127	-	-	-	ND (0.34)	-	-	-	-	-	-	-	-	6.9
4-Nitrophenol	mg/kg	-	-	-	ND (0.12)	-	-	-	ND (3.4)	-	-	-	-	-	-	-	-	ND (0.39)
Pentachlorophenol	mg/kg	10	-	-	ND (0.092)	-	-	-	ND (1.7)	-	-	-	-	-	-	-	-	ND (0.19)
Phenanthrene	mg/kg	300000	-	-	0.0393	-	-	-	ND (0.34)	-	-	-	-	-	-	-	-	2.51
Pyrene	mg/kg	18000	-	-	0.0359 J	-	-	-	0.141 J	-	-	-	-	-	-	-	-	0.279
Phenol	mg/kg	210000	-	-	ND (0.025)	-	-	-	ND (0.69)	-	-	-	-	-	-	-	-	0.214
2,3,4,6-Tetrachlorophenol	mg/kg	-	-	-	ND (0.089)	-	-	-	ND (1.7)	-	-	-	-	-	-	-	-	ND (0.19)
2,4,5-Trichlorophenol	mg/kg	68000	-	-	ND (0.084)	-	-	-	ND (1.7)	-	-	-	-	-	-	-	-	ND (0.19)
2,4,6-Trichlorophenol	mg/kg	74	-	-	ND (0.059)	-	-	-	ND (1.7)	-	-	-	-	-	-	-	-	ND (0.19)
Acetophenone	mg/kg	5	-	-	ND (0.012)	-	-	-	ND (1.7)	-	-	-	-	-	-	-	-	ND (0.19)
Atrazine	mg/kg	2400	-	-	ND (0.023)	-	-	-	ND (0.69)	-	-	-	-	-	-	-	-	ND (0.078)
4-Bromophenyl phenyl ether	mg/kg	-	-	-	ND (0.016)	-	-	-	ND (0.69)	-	-	-	-	-	-	-	-	ND (0.078)
Butyl benzyl phthalate	mg/kg	14000	-	-	ND (0.015)	-	-	-	ND (0.69)	-	-	-	-	-	-	-	-	ND (0.078)
1,1'-Biphenyl	mg/kg	34000	-	-	ND (0.0075)	-	-	-	ND (0.69)	-	-	-	-	-	-	-	-	0.636
Benzaldehyde	mg/kg	68000	-	-	ND (0.0091)	-	-	-	ND (1.7)	-	-	-	-	-	-	-	-	ND (0.19)
2-Chloronaphthalene	mg/kg	-	-	-	ND (0.0086)	-	-	-	ND (0.69)	-	-	-	-	-	-	-	-	ND (0.078)
4-Chloroaniline	mg/kg	-	-	-	ND (0.012)	-	-	-	ND (1.7)	-	-	-	-	-	-	-	-	ND (0.19)
Carbazole	mg/kg	96	-	-	ND (0.0085)	-	-	-	ND (0.69)	-	-	-	-	-	-	-	-	ND (0.078)
Caprolactam	mg/kg	340000	-	-	ND (0.024)	-	-	-	ND (0.69)	-	-	-	-	-	-	-	-	ND (0.078)
bis(2-Chloroethoxy)methane	mg/kg	-	-	-	ND (0.025)	-	-	-	ND (0.69)	-	-	-	-	-	-	-	-	ND (0.078)
bis(2-Chloroethyl)ether	mg/kg	2	-	-	ND (0.0088)	-	-	-	ND (0.69)	-	-	-	-	-	-	-	-	ND (0.078)
bis(2-Chloroisopropyl)ether	mg/kg	67	-	-	ND (0.013)	-	-	-	ND (0.69)	-	-	-	-	-	-	-	-	ND (0.078)
4-Chlorophenyl phenyl ether	mg/kg	-	-	-	ND (0.0080)	-	-	-	ND (0.69)	-	-	-	-	-	-	-	-	ND (0.078)
2,4-Dinitrotoluene	mg/kg	3	-	-	ND (0.012)	-	-	-	ND (0.34)	-	-	-	-	-	-	-	-	ND (0.039)
2,6-Dinitrotoluene	mg/kg	3	-	-	ND (0.0081)	-	-	-	ND (0.34)	-	-	-	-	-	-	-	-	ND (0.039)
3,3'-Dichlorobenzidine	mg/kg	4	-	-	ND (0.020)	-	-	-	ND (0.69)	-	-	-	-	-	-	-	-	ND (0.078)
1,4-Dioxane	mg/kg	-	-	-	ND (0.025)	-	-	-	ND (0.34)	-	-	-	-	-	-	-	-	ND (0.039)
Dibenzofuran	mg/kg	-	-	-	ND (0.0062)	-	-	-	ND (0.69)	-	-	-	-	-	-	-	-	0.397
Di-n-butyl phthalate	mg/kg	68000	-	-	ND (0.010)	-	-	-	ND (0.69)	-	-	-	-	-	-	-	-	ND (0.078)
Di-n-octyl phthalate	mg/kg	27000	-	-	ND (0.0094)	-	-	-	ND (0.69)	-	-	-	-	-	-	-	-	ND (0.078)
Diethyl phthalate	mg/kg	550000	-	-	ND (0.0091)	-	-	-	ND (0.69)	-	-	-	-	-	-	-	-	ND (0.078)
Dimethyl phthalate	mg/kg	-	-	-	ND (0.0076)	-	-	-	ND (0.69)	-	-	-	-	-	-	-	-	ND (0.078)
bis(2-Ethylhexyl)phthalate	mg/kg	140	-	-	-	-	-	-	ND (0.69)	-	-	-	-	-	-	-	-	0.0724 J
Hexachlorobenzene	mg/kg	1	-	-	ND (0.010)	-	-	-	ND (0.69)	-	-	-	-	-	-	-	-	ND (0.078)
Hexachlorobutadiene	mg/kg	26	-	-	ND (0.013)	-	-	-	ND (0.34)	-	-	-	-	-	-	-	-	ND (0.039)
Hexachlorocyclopentadiene	mg/kg	110	-	-	ND (0.014)	-	-	-	ND (0.34)	-	-	-	-	-	-	-	-	ND (0.39)
Hexachloroethane	mg/kg	140	-	-	ND (0.019)	-	-	-	ND (1.7)	-	-	-	-	-	-	-	-	ND (0.19)
Isophorone	mg/kg	2000	-	-	ND (0.0065)	-	-	-	ND (0.69)	-	-	-	-	-	-	-	-	ND (0.078)
2-Methylnaphthalene	mg/kg	2400	-	-	0.547	-	-	-	ND (0.69)	-	-	-	-	-	-	-	-	18.4
2-Nitroaniline	mg/kg	23000	-	-	ND (0.018)	-	-	-	ND (1.7)	-	-	-	-	-	-	-	-	ND (0.19)
3-Nitroaniline	mg/kg	-	-	-	ND (0.013)	-	-	-	ND (1.7)	-	-	-	-	-	-	-	-	ND (0.19)
4-Nitroaniline	mg/kg	-	-	-	ND (0.010)	-	-	-	ND (1.7)	-	-	-	-	-	-	-	-	ND (0.19)
Nitrobenzene	mg/kg	340	-	-	ND (0.015)	-	-	-	ND (0.69)	-	-	-	-	-	-	-	-	ND (0.078)
N-Nitroso-di-n-propylamine	mg/kg	0.3	-	-	ND (0.011)	-	-	-	ND (0.69)	-	-	-	-	-	-	-	-	ND (0.078)
N-Nitrosodiphenylamine	mg/kg	390	-	-	ND (0.0092)	-	-	-	ND (1.7)	-	-	-	-	-	-	-	-	ND (0.19)
1,2,4,5-Tetrachlorobenzene	mg/kg	-	-	-	ND (0.0064)	-	-	-	ND (1.7)	-	-	-	-	-	-	-	-	ND (0.19)
GC/MS Semi-volatile TIC																		
Total TIC, Semi-Volatile	mg/kg	-	-	-	6.66 J	-	-	-	3.3 J	-	-	-	-	-	-	-	-	80.5 J
Total Alkanes	mg/kg	-	-	-	0	-	-	-	0	-	-	-	-	-	-	-	-	15.4 J

Table 4-1

Client Sample ID:		NJ Non-Residential Direct Contact Soil	VRUPT1-SS-1	VRUPT1-SS-1	VRUPT1-SS-1	VRUPT1-SS-2	VRUPT1-SS-2	VRUPT1-SS-1	VRUPT1-SS-1	VRUPT1-SS-1	VRUPT1-SS-3	VRUPT1-SS-3	VRUPT1-SS-4	VRUPT1-SS-5	VRUPT1-SS-6	VRUPT1-SS-7	VRUPT1-SS-7
Lab Sample ID:			JB99429-3	JB99429-3R	JB99429-3T	JB99429-2	JB99429-2T	JC2396-1	JC2396-1R	JC2396-1RT	JB99429-5	JB99429-5T	JC3371-3	JC2112-2	JC2112-1	JC1987-5	JC1987-5T
Date Sampled:			7/16/2015	7/16/2015	7/16/2015	7/16/2015	7/16/2015	8/26/2015	8/26/2015	8/26/2015	7/16/2015	9/8/2015	9/8/2015	8/21/2015	8/21/2015	8/20/2015	8/20/2015
Matrix:			Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Depth:			1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft	5.0-5.5 ft	5.0-5.5 ft	2.0-2.5 ft	3.0-3.5 ft	4.0-4.5 ft	4.0-4.5 ft	4.0-4.5 ft
GC Semi-volatiles (NJDEP EPH)																	
EPH (C9-C28)	mg/kg	-	111	-	-	31.6	-	-	-	-	23.8	-	64.4	541	117	2550	-
EPH (C28-C40)	mg/kg	-	71.4	-	-	26.8	-	-	-	-	31	-	101	159	54.8	82.6	-
Total EPH (C9-C40)	mg/kg	-	182	-	-	58.4	-	-	-	-	54.8	-	165	700	172	2630	-
C10-C12 Aromatics	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	39.8
C12-C16 Aromatics	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	114
C16-C21 Aromatics	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	200
C21-C36 Aromatics	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	ND (12)
Total Aromatics	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	354
C9-C12 Aliphatics	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	44.9
C12-C16 Aliphatics	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	173
C16-C21 Aliphatics	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	163
C21-C40 Aliphatics	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	31.5
Total Aliphatics	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	413
Total EPH	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	767
GC Semi-volatiles (SW846 8082A)																	
Aroclor 1016	mg/kg	1	-	ND (0.011)	-	-	-	ND (0.034)	-	-	-	-	-	-	-	-	ND (0.039)
Aroclor 1221	mg/kg	1	-	ND (0.021)	-	-	-	ND (0.034)	-	-	-	-	-	-	-	-	ND (0.039)
Aroclor 1232	mg/kg	1	-	ND (0.012)	-	-	-	ND (0.034)	-	-	-	-	-	-	-	-	ND (0.039)
Aroclor 1242	mg/kg	1	-	ND (0.016)	-	-	-	ND (0.034)	-	-	-	-	-	-	-	-	ND (0.039)
Aroclor 1248	mg/kg	1	-	ND (0.011)	-	-	-	ND (0.034)	-	-	-	-	-	-	-	-	ND (0.039)
Aroclor 1254	mg/kg	1	-	ND (0.016)	-	-	-	ND (0.034)	-	-	-	-	-	-	-	-	ND (0.039)
Aroclor 1260	mg/kg	1	-	ND (0.015)	-	-	-	0.0576	-	-	-	-	-	-	-	-	ND (0.039)
Aroclor 1268	mg/kg	1	-	ND (0.011)	-	-	-	ND (0.034)	-	-	-	-	-	-	-	-	ND (0.039)
Aroclor 1262	mg/kg	1	-	ND (0.010)	-	-	-	ND (0.034)	-	-	-	-	-	-	-	-	ND (0.039)

All results in mg/kg unless otherwise noted

milligrams per kilogram	mg/kg
Estimated Value	J
Not Sampled	NS
Not Detected	ND
Not Analyzed	NA
Method Detection Limit	( )
Compound Found in Blank	B
Results to soil saturation limit	**
For high interfering element.	a

Exceeds NJDEP Non-Residential Soil Remediation Standard

<sup>a</sup> Elevated detection limit due to dilution required for high interfering element.



Table 4-1  
Hess Corporation - Former Port Reading Complex (HC-PR) - 750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Sample Results - AOC-44 and AOC-74 - Truck Unloading (Prover Truck) Area 2, TEL Building (South)

Client Sample ID:		NJ Non-Residential Direct Contact Soil	TELP2-SS-1	TELP2-SS-2	TELP2-SS-3	TELP2-SS-4	TELP2-SS-4	TELP2-SS-5	TELP2-SS-6	TELP2-SS-6
Lab Sample ID:			JB99834-7	JB99834-8	JB99834-9	JB99834-10	JB99834-10R	JB99834-11	JB99834-12	JB99834-12R
Date Sampled:			7/22/2015	7/22/2015	7/22/2015	7/22/2015	7/22/2015	7/22/2015	7/22/2015	7/22/2015
Sample Depth:			4.0-4.5	4.0-4.5	2.5-3.0	2.5-3.0	2.5-3.0	2.5-3.0	1.0-1.5	1.0-1.5
Matrix:			Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
<b>GC/MS Volatiles (SW846 8260C)</b>										
Acetone	mg/kg	NA	0.0565	0.0102	0.031	0.174 J	-	0.0575	0.0333	-
Benzene	mg/kg	5	0.00026 J	0.0041	0.0028	ND (0.0076)	-	0.00037 J	0.00059	-
Bromochloromethane	mg/kg	-	ND (0.00031)	ND (0.00032)	ND (0.00031)	ND (0.018)	-	ND (0.00044)	ND (0.00031)	-
Bromodichloromethane	mg/kg	3	ND (0.00016)	ND (0.00016)	ND (0.00016)	ND (0.0089)	-	ND (0.00022)	ND (0.00016)	-
Bromoform	mg/kg	280	ND (0.00024)	ND (0.00024)	ND (0.00024)	ND (0.013)	-	ND (0.00033)	ND (0.00024)	-
Bromomethane	mg/kg	59	ND (0.00037)	ND (0.00038)	ND (0.00037)	ND (0.021)	-	ND (0.00052)	ND (0.00037)	-
2-Butanone (MEK)	mg/kg	44000	0.0115	ND (0.00020)	ND (0.00019)	ND (0.11)	-	0.0074 J	ND (0.00019)	-
Carbon disulfide	mg/kg	110000	0.00058 J	0.0013 J	0.0072	ND (0.013)	-	0.0052	0.0096	-
Carbon tetrachloride	mg/kg	2	ND (0.00023)	ND (0.00024)	ND (0.00023)	ND (0.013)	-	ND (0.00033)	ND (0.00023)	-
Chlorobenzene	mg/kg	7400	ND (0.00016)	ND (0.00016)	ND (0.00016)	ND (0.0088)	-	ND (0.00022)	ND (0.00016)	-
Chloroethane	mg/kg	1100	ND (0.00049)	ND (0.00050)	ND (0.00048)	ND (0.027)	-	ND (0.00068)	ND (0.00049)	-
Chloroform	mg/kg	2	ND (0.00015)	ND (0.00015)	ND (0.00015)	ND (0.0085)	-	ND (0.00021)	ND (0.00015)	-
Chloromethane	mg/kg	12	ND (0.00026)	ND (0.00027)	ND (0.00026)	ND (0.015)	-	ND (0.00037)	ND (0.00027)	-
Cyclohexane	mg/kg	-	ND (0.00032)	ND (0.00033)	0.0028	0.41	-	0.00083 J	0.0047	-
1,2-Dibromo-3-chloropropane	mg/kg	0.2	ND (0.00055)	ND (0.00056)	ND (0.00055)	ND (0.031)	-	ND (0.00077)	ND (0.00055)	-
Dibromochloromethane	mg/kg	8	ND (0.00021)	ND (0.00021)	ND (0.00021)	ND (0.012)	-	ND (0.00029)	ND (0.00021)	-
1,2-Dibromoethane	mg/kg	0.04	ND (0.00013)	ND (0.00014)	ND (0.00013)	ND (0.0074)	-	ND (0.00019)	ND (0.00013)	-
1,2-Dichlorobenzene	mg/kg	59000	ND (0.00012)	ND (0.00013)	ND (0.00012)	ND (0.0069)	-	ND (0.00017)	ND (0.00012)	-
1,3-Dichlorobenzene	mg/kg	59000	ND (0.00016)	ND (0.00016)	ND (0.00016)	ND (0.0089)	-	ND (0.00022)	ND (0.00016)	-
1,4-Dichlorobenzene	mg/kg	13	ND (0.00023)	ND (0.00023)	ND (0.00023)	ND (0.013)	-	ND (0.00032)	ND (0.00023)	-
Dichlorodifluoromethane	mg/kg	230000	ND (0.00036)	ND (0.00037)	ND (0.00036)	ND (0.021)	-	ND (0.00051)	ND (0.00037)	-
1,1-Dichloroethane	mg/kg	24	ND (0.00014)	ND (0.00015)	ND (0.00014)	ND (0.0080)	-	ND (0.00020)	ND (0.00014)	-
1,2-Dichloroethane	mg/kg	3	ND (0.00014)	ND (0.00014)	ND (0.00013)	ND (0.0076)	-	ND (0.00019)	ND (0.00014)	-
1,1-Dichloroethene	mg/kg	150	ND (0.00060)	ND (0.00061)	ND (0.00059)	ND (0.034)	-	ND (0.00084)	ND (0.00060)	-
cis-1,2-Dichloroethene	mg/kg	560	ND (0.00079)	ND (0.00080)	ND (0.00078)	ND (0.044)	-	ND (0.0011)	ND (0.00079)	-
trans-1,2-Dichloroethene	mg/kg	720	ND (0.00060)	ND (0.00061)	ND (0.00060)	ND (0.034)	-	ND (0.00084)	ND (0.00060)	-
1,2-Dichloropropane	mg/kg	5	ND (0.00024)	ND (0.00025)	ND (0.00024)	ND (0.014)	-	ND (0.00034)	ND (0.00024)	-
cis-1,3-Dichloropropene	mg/kg	7	ND (0.00012)	ND (0.00012)	ND (0.00012)	ND (0.0067)	-	ND (0.00017)	ND (0.00012)	-
trans-1,3-Dichloropropene	mg/kg	7	ND (0.00018)	ND (0.00018)	ND (0.00018)	ND (0.010)	-	ND (0.00025)	ND (0.00018)	-
Ethylbenzene	mg/kg	110000	ND (0.00016)	ND (0.00017)	0.0128	0.197	-	ND (0.00023)	0.0033	-
Freon 113	mg/kg	-	ND (0.00045)	ND (0.00046)	ND (0.00045)	ND (0.025)	-	ND (0.00063)	ND (0.00045)	-
2-Hexanone	mg/kg	-	ND (0.0014)	ND (0.0014)	ND (0.0013)	ND (0.076)	-	ND (0.0019)	ND (0.0014)	-
Isopropylbenzene	mg/kg	-	ND (0.00011)	ND (0.00011)	0.0155	10.1	-	0.0034	0.0077	-
Methyl Acetate	mg/kg	NA	ND (0.00087)	ND (0.00089)	ND (0.00086)	ND (0.049)	-	ND (0.0012)	ND (0.00087)	-
Methylcyclohexane	mg/kg	-	ND (0.00023)	ND (0.00023)	0.0178	28.6	-	0.0024 J	0.0101	-
Methyl Tert Butyl Ether	mg/kg	320	0.00092 J	ND (0.00016)	ND (0.00015)	ND (0.0087)	-	ND (0.00022)	ND (0.00016)	-
4-Methyl-2-pentanone(MIBK)	mg/kg	-	ND (0.00046)	ND (0.00047)	ND (0.00046)	ND (0.026)	-	ND (0.00065)	ND (0.00047)	-
Methylene chloride	mg/kg	97	ND (0.00099)	ND (0.0010)	0.0016 J	ND (0.056)	-	ND (0.0014)	ND (0.0010)	-
Styrene	mg/kg	260	ND (0.00018)	ND (0.00018)	ND (0.00018)	ND (0.010)	-	ND (0.00025)	ND (0.00018)	-
1,1,2,2-Tetrachloroethane	mg/kg	3	ND (0.00018)	ND (0.00018)	ND (0.00018)	ND (0.0099)	-	ND (0.00025)	ND (0.00018)	-
Tetrachloroethene	mg/kg	5	ND (0.00030)	ND (0.00031)	ND (0.00030)	ND (0.017)	-	ND (0.00043)	ND (0.00031)	-
Toluene	mg/kg	91000	0.0039	0.0029	0.0055	0.0542 J	-	0.0049	0.0041	-
1,2,3-Trichlorobenzene	mg/kg	-	ND (0.00018)	ND (0.00018)	ND (0.00018)	ND (0.010)	-	ND (0.00025)	ND (0.00018)	-
1,2,4-Trichlorobenzene	mg/kg	820	ND (0.00017)	ND (0.00017)	ND (0.00017)	ND (0.0096)	-	ND (0.00024)	ND (0.00017)	-
1,1,1-Trichloroethane	mg/kg	4200	ND (0.00015)	ND (0.00015)	ND (0.00015)	ND (0.0085)	-	ND (0.00021)	ND (0.00015)	-
1,1,2-Trichloroethane	mg/kg	6	ND (0.00015)	ND (0.00015)	ND (0.00015)	ND (0.0084)	-	ND (0.00021)	ND (0.00015)	-
Trichloroethene	mg/kg	20	ND (0.00015)	ND (0.00015)	ND (0.00015)	ND (0.0084)	-	ND (0.00021)	ND (0.00015)	-
Trichlorofluoromethane	mg/kg	340000	ND (0.00025)	ND (0.00026)	ND (0.00025)	ND (0.014)	-	ND (0.00035)	ND (0.00025)	-
Vinyl chloride	mg/kg	2	ND (0.00020)	ND (0.00020)	ND (0.00020)	ND (0.011)	-	ND (0.00028)	ND (0.00020)	-
m,p-Xylene	mg/kg	170000	ND (0.00036)	ND (0.00036)	0.0202	0.189	-	ND (0.00050)	0.0075	-
o-Xylene	mg/kg	170000	ND (0.00028)	ND (0.00028)	0.0104	0.0782	-	ND (0.00039)	0.0072	-
Xylene (total)	mg/kg	170000	ND (0.00028)	ND (0.00028)	0.0306	0.267	-	ND (0.00039)	0.0147	-
<b>GC/MS Volatile TIC</b>										
Total TIC, Volatile	mg/kg	-	0	0	1.136 J	355 J	-	0.1404 J	0.308 J	-
Total Alkanes	mg/kg	-	0	0	0.823 J	192 J	-	0.032 J	0.173 J	-

Table 4-1

Client Sample ID:		NJ Non-Residential Direct Contact Soil	TELP2-SS-1	TELP2-SS-2	TELP2-SS-3	TELP2-SS-4	TELP2-SS-4	TELP2-SS-5	TELP2-SS-6	TELP2-SS-6
Lab Sample ID:			JB99834-7	JB99834-8	JB99834-9	JB99834-10	JB99834-10R	JB99834-11	JB99834-12	JB99834-12R
Date Sampled:			7/22/2015	7/22/2015	7/22/2015	7/22/2015	7/22/2015	7/22/2015	7/22/2015	7/22/2015
Sample Depth:			4.0-4.5	4.0-4.5	2.5-3.0	2.5-3.0	2.5-3.0	2.5-3.0	1.0-1.5	1.0-1.5
Matrix:			Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
GC/MS Semi-volatiles (SW846 8270D)										
Acenaphthene	mg/kg	37000	-	-	-	-	0.196	-	-	0.0993
Acenaphthylene	mg/kg	300000	-	-	-	-	ND (0.034)	-	-	ND (0.037)
2-Chlorophenol	mg/kg	2200	-	-	-	-	ND (0.068)	-	-	ND (0.074)
Anthracene	mg/kg	30000	-	-	-	-	0.351	-	-	0.0713
4-Chloro-3-methyl phenol	mg/kg	-	-	-	-	-	ND (0.17)	-	-	ND (0.19)
Benzo(a)anthracene	mg/kg	2	-	-	-	-	0.28	-	-	0.312
Benzo(a)pyrene	mg/kg	0.2	-	-	-	-	0.218	-	-	0.254
2,4-Dichlorophenol	mg/kg	2100	-	-	-	-	ND (0.17)	-	-	ND (0.19)
Benzo(b)fluoranthene	mg/kg	2	-	-	-	-	0.264	-	-	0.203
2,4-Dimethylphenol	mg/kg	14000	-	-	-	-	ND (0.17)	-	-	ND (0.19)
Benzo(g,h,i)perylene	mg/kg	30000	-	-	-	-	0.156	-	-	0.133
2,4-Dinitrophenol	mg/kg	1400	-	-	-	-	ND (0.17)	-	-	ND (0.19)
Benzo(k)fluoranthene	mg/kg	23	-	-	-	-	0.0985	-	-	0.0573
Chrysene	mg/kg	230	-	-	-	-	0.323	-	-	0.499
4,6-Dinitro-o-cresol	mg/kg	68	-	-	-	-	ND (0.17)	-	-	ND (0.19)
Dibenzo(a,h)anthracene	mg/kg	0.2	-	-	-	-	0.0409	-	-	0.0583
Fluoranthene	mg/kg	24000	-	-	-	-	0.989	-	-	0.215
2-Methylphenol	mg/kg	3400	-	-	-	-	ND (0.068)	-	-	ND (0.074)
Fluorene	mg/kg	24000	-	-	-	-	0.477	-	-	ND (0.037)
3&4-Methylphenol	mg/kg	-	-	-	-	-	ND (0.068)	-	-	ND (0.074)
Indeno(1,2,3-cd)pyrene	mg/kg	2	-	-	-	-	0.136	-	-	0.0867
2-Nitrophenol	mg/kg	-	-	-	-	-	ND (0.17)	-	-	ND (0.19)
4-Nitrophenol	mg/kg	-	-	-	-	-	ND (0.34)	-	-	ND (0.37)
Naphthalene	mg/kg	17	-	-	-	-	9.35	-	-	0.0708
Phenanthrene	mg/kg	300000	-	-	-	-	1.56	-	-	0.0566
Pentachlorophenol	mg/kg	10	-	-	-	-	ND (0.17)	-	-	ND (0.19)
Phenol	mg/kg	210000	-	-	-	-	ND (0.068)	-	-	0.0612 J
Pyrene	mg/kg	18000	-	-	-	-	0.658	-	-	0.318
2,3,4,6-Tetrachlorophenol	mg/kg	-	-	-	-	-	ND (0.17)	-	-	ND (0.19)
2,4,5-Trichlorophenol	mg/kg	68000	-	-	-	-	ND (0.17)	-	-	ND (0.19)
2,4,6-Trichlorophenol	mg/kg	74	-	-	-	-	ND (0.17)	-	-	ND (0.19)
Acetophenone	mg/kg	5	-	-	-	-	ND (0.17)	-	-	ND (0.19)
Atrazine	mg/kg	2400	-	-	-	-	ND (0.068)	-	-	ND (0.074)
4-Bromophenyl phenyl ether	mg/kg	-	-	-	-	-	ND (0.068)	-	-	ND (0.074)
Butyl benzyl phthalate	mg/kg	14000	-	-	-	-	ND (0.068)	-	-	ND (0.074)
1,1'-Biphenyl	mg/kg	34000	-	-	-	-	ND (0.068)	-	-	ND (0.074)
Benzaldehyde	mg/kg	68000	-	-	-	-	ND (0.17)	-	-	ND (0.19)
2-Chloronaphthalene	mg/kg	-	-	-	-	-	ND (0.068)	-	-	ND (0.074)
4-Chloroaniline	mg/kg	-	-	-	-	-	ND (0.17)	-	-	ND (0.19)
Carbazole	mg/kg	96	-	-	-	-	0.164	-	-	ND (0.074)
Caprolactam	mg/kg	340000	-	-	-	-	ND (0.068)	-	-	ND (0.074)
bis(2-Chloroethoxy)methane	mg/kg	-	-	-	-	-	ND (0.068)	-	-	ND (0.074)
bis(2-Chloroethyl)ether	mg/kg	2	-	-	-	-	ND (0.068)	-	-	ND (0.074)
bis(2-Chloroisopropyl)ether	mg/kg	67	-	-	-	-	ND (0.068)	-	-	ND (0.074)
4-Chlorophenyl phenyl ether	mg/kg	-	-	-	-	-	ND (0.068)	-	-	ND (0.074)
2,4-Dinitrotoluene	mg/kg	3	-	-	-	-	ND (0.034)	-	-	ND (0.037)
2,6-Dinitrotoluene	mg/kg	3	-	-	-	-	ND (0.034)	-	-	ND (0.037)
3,3'-Dichlorobenzidine	mg/kg	4	-	-	-	-	ND (0.068)	-	-	ND (0.074)
1,4-Dioxane	mg/kg	-	-	-	-	-	ND (0.034)	-	-	ND (0.037)
Dibenzofuran	mg/kg	-	-	-	-	-	ND (0.068)	-	-	0.0169 J
Di-n-butyl phthalate	mg/kg	68000	-	-	-	-	0.0957	-	-	ND (0.074)
Di-n-octyl phthalate	mg/kg	27000	-	-	-	-	ND (0.068)	-	-	ND (0.074)
Diethyl phthalate	mg/kg	550000	-	-	-	-	ND (0.068)	-	-	ND (0.074)
Dimethyl phthalate	mg/kg	-	-	-	-	-	ND (0.068)	-	-	ND (0.074)
bis(2-Ethylhexyl)phthalate	mg/kg	140	-	-	-	-	0.161	-	-	ND (0.074)
Hexachlorobenzene	mg/kg	1	-	-	-	-	ND (0.068)	-	-	ND (0.074)
Hexachlorobutadiene	mg/kg	25	-	-	-	-	ND (0.034)	-	-	ND (0.037)
Hexachlorocyclopentadiene	mg/kg	110	-	-	-	-	ND (0.34)	-	-	ND (0.37)
Hexachloroethane	mg/kg	140	-	-	-	-	ND (0.17)	-	-	ND (0.19)
Isophorone	mg/kg	2000	-	-	-	-	ND (0.068)	-	-	ND (0.074)
2-Methylnaphthalene	mg/kg	2400	-	-	-	-	20.4	-	-	0.104
2-Nitroaniline	mg/kg	23000	-	-	-	-	ND (0.17)	-	-	ND (0.19)
3-Nitroaniline	mg/kg	-	-	-	-	-	ND (0.17)	-	-	ND (0.19)
4-Nitroaniline	mg/kg	-	-	-	-	-	ND (0.17)	-	-	ND (0.19)
Nitrobenzene	mg/kg	340	-	-	-	-	ND (0.068)	-	-	ND (0.074)
N-Nitroso-di-n-propylamine	mg/kg	0.3	-	-	-	-	ND (0.068)	-	-	ND (0.074)
N-Nitrosodiphenylamine	mg/kg	390	-	-	-	-	ND (0.17)	-	-	ND (0.19)
1,2,4,5-Tetrachlorobenzene	mg/kg	-	-	-	-	-	ND (0.17)	-	-	ND (0.19)
GC/MS Semi-volatile TIC										
Total TIC, Semi-Volatile	mg/kg	-	-	-	-	-	30.49 J	-	-	12.41 J
Total Alkanes	mg/kg	-	-	-	-	-	-	-	-	-
Total Alkanes	mg/kg	-	-	-	-	-	11.8 J	-	-	3.08 J
GC Volatiles (SW846 8015C)										
TPH-GRO (C6-C10)	mg/kg	-	-	-	-	-	-	-	-	-

Hess Corporation - Former Port Reading Complex (HC-PR) - 750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Sample Results - AOC-44 and AOC-74 - Truck Unloading (Prover Truck) Area 2, TEL Building (South)

[illegible]

Table 4-1  
Hess Corporate - Former Port Reading Complex (HC-PR) - 750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Sample Results - AOC-45 - SRU Truck Unloading Area

Client Sample ID:		NJ Non-Residential Direct Contact Soil	SRU-SS-1	SRU-SS-1	SRU-SS-2	SRU-SS-3	SRU-SS-3A
Lab Sample ID:			JB99248-1	JB99248-1R	JB99097-8	JB99097-6	JB99097-9
Date Sampled:			7/15/2015	7/15/2015	7/14/2015	7/14/2015	7/14/2015
Sample Depth:			0.5-1.0	0.5-1.0	1.0-1.5	1.0-1.5	6.5-7.0
Matrix:			Soil	Soil	Soil	Soil	Soil
GC/MS Volatiles (SW846 8260C)							
Acetone	mg/kg	NA	0.0293	-	0.0727	0.0679	0.136
Benzene	mg/kg	5	ND (0.00013)	-	ND (0.00015)	ND (0.00015)	ND (0.00011)
Bromochloromethane	mg/kg	-	ND (0.00031)	-	ND (0.00035)	ND (0.00035)	ND (0.00026)
Bromodichloromethane	mg/kg	3	ND (0.00016)	-	ND (0.00018)	ND (0.00018)	ND (0.00013)
Bromoform	mg/kg	280	ND (0.00024)	-	ND (0.00027)	ND (0.00027)	ND (0.00020)
Bromomethane	mg/kg	59	ND (0.00037)	-	ND (0.00041)	ND (0.00041)	ND (0.00031)
2-Butanone (MEK)	mg/kg	44000	0.0054 J	-	0.0136	0.0147	0.012
Carbon disulfide	mg/kg	110000	0.00085 J	-	0.00080 J	0.0036	ND (0.00019)
Carbon tetrachloride	mg/kg	2	ND (0.00023)	-	ND (0.00026)	ND (0.00026)	ND (0.00020)
Chlorobenzene	mg/kg	7400	ND (0.00016)	-	ND (0.00017)	ND (0.00018)	ND (0.00013)
Chloroethane	mg/kg	1100	ND (0.00048)	-	ND (0.00054)	ND (0.00054)	ND (0.00041)
Chloroform	mg/kg	2	ND (0.00015)	-	ND (0.00017)	ND (0.00017)	ND (0.00013)
Chloromethane	mg/kg	12	ND (0.00026)	-	ND (0.00030)	ND (0.00030)	ND (0.00022)
Cyclohexane	mg/kg	-	ND (0.00032)	-	ND (0.00036)	ND (0.00036)	ND (0.00027)
1,2-Dibromo-3-chloropropane	mg/kg	0.2	ND (0.00055)	-	ND (0.00061)	ND (0.00062)	ND (0.00046)
Dibromochloromethane	mg/kg	8	ND (0.00021)	-	ND (0.00023)	ND (0.00023)	ND (0.00017)
1,2-Dibromomethane	mg/kg	0.04	ND (0.00013)	-	ND (0.00015)	ND (0.00015)	ND (0.00011)
1,2-Dichlorobenzene	mg/kg	59000	ND (0.00012)	-	ND (0.00014)	ND (0.00014)	ND (0.00010)
1,3-Dichlorobenzene	mg/kg	59000	ND (0.00016)	-	ND (0.00018)	ND (0.00018)	ND (0.00013)
1,4-Dichlorobenzene	mg/kg	13	ND (0.00023)	-	ND (0.00025)	ND (0.00025)	ND (0.00019)
Dichlorodifluoromethane	mg/kg	230000	ND (0.00036)	-	ND (0.00041)	ND (0.00041)	ND (0.00031)
1,1-Dichloroethane	mg/kg	24	ND (0.00014)	-	ND (0.00016)	ND (0.00016)	ND (0.00012)
1,2-Dichloroethane	mg/kg	3	ND (0.00014)	-	ND (0.00015)	ND (0.00015)	ND (0.00011)
1,1-Dichloroethene	mg/kg	150	ND (0.00060)	-	ND (0.00067)	ND (0.00067)	ND (0.00050)
cis-1,2-Dichloroethene	mg/kg	560	ND (0.00079)	-	ND (0.00088)	ND (0.00088)	ND (0.00066)
trans-1,2-Dichloroethene	mg/kg	720	ND (0.00060)	-	ND (0.00067)	ND (0.00067)	ND (0.00051)
1,2-Dichloropropane	mg/kg	5	ND (0.00024)	-	ND (0.00027)	ND (0.00027)	ND (0.00020)
cis-1,3-Dichloropropene	mg/kg	7	ND (0.00012)	-	ND (0.00013)	ND (0.00013)	ND (0.00010)
trans-1,3-Dichloropropene	mg/kg	7	ND (0.00018)	-	ND (0.00020)	ND (0.00020)	ND (0.00015)
Ethylbenzene	mg/kg	110000	ND (0.00016)	-	ND (0.00018)	ND (0.00018)	ND (0.00014)
Freon 113	mg/kg	-	ND (0.00045)	-	ND (0.00051)	ND (0.00051)	ND (0.00038)
2-Hexanone	mg/kg	-	ND (0.0014)	-	ND (0.0015)	ND (0.0015)	ND (0.0011)
Isopropylbenzene	mg/kg	-	ND (0.00011)	-	ND (0.00012)	ND (0.00012)	ND (0.000090)
Methyl Acetate	mg/kg	NA	ND (0.00087)	-	ND (0.00097)	ND (0.00097)	ND (0.00073)
Methylcyclohexane	mg/kg	-	ND (0.00023)	-	ND (0.00026)	ND (0.00026)	ND (0.00019)
Methyl Tert Butyl Ether	mg/kg	320	ND (0.00015)	-	ND (0.00017)	ND (0.00017)	ND (0.00013)
4-Methyl-2-pentanone(MIBK)	mg/kg	-	ND (0.00046)	-	ND (0.00052)	ND (0.00052)	ND (0.00039)
Methylene chloride	mg/kg	97	ND (0.00099)	-	ND (0.0011)	ND (0.0011)	ND (0.00084)
Styrene	mg/kg	260	ND (0.00018)	-	ND (0.00020)	ND (0.00020)	ND (0.00015)
1,1,2,2-Tetrachloroethane	mg/kg	3	ND (0.00018)	-	ND (0.00020)	ND (0.00020)	ND (0.00015)
Tetrachloroethene	mg/kg	5	ND (0.00030)	-	ND (0.00034)	ND (0.00034)	ND (0.00026)
Toluene	mg/kg	91000	0.0047	-	ND (0.00023)	0.00024 J	0.00025 J
1,2,3-Trichlorobenzene	mg/kg	-	ND (0.00018)	-	ND (0.00020)	ND (0.00020)	ND (0.00015)
1,2,4-Trichlorobenzene	mg/kg	820	ND (0.00017)	-	ND (0.00019)	ND (0.00019)	ND (0.00014)
1,1,1-Trichloroethane	mg/kg	4200	ND (0.00015)	-	ND (0.00017)	ND (0.00017)	ND (0.00013)
1,1,2-Trichloroethane	mg/kg	6	ND (0.00015)	-	ND (0.00017)	ND (0.00017)	ND (0.00013)
Trichloroethene	mg/kg	20	ND (0.00015)	-	ND (0.00017)	ND (0.00017)	ND (0.00013)
Trichlorofluoromethane	mg/kg	340000	ND (0.00025)	-	ND (0.00028)	ND (0.00028)	ND (0.00021)
Vinyl chloride	mg/kg	2	ND (0.00020)	-	ND (0.00022)	ND (0.00022)	ND (0.00017)
m,p-Xylene	mg/kg	170000	ND (0.00035)	-	ND (0.00040)	ND (0.00040)	ND (0.00030)
o-Xylene	mg/kg	170000	ND (0.00028)	-	ND (0.00031)	ND (0.00031)	ND (0.00023)
Xylene (total)	mg/kg	170000	ND (0.00028)	-	ND (0.00031)	ND (0.00031)	ND (0.00023)
GC/MS Volatile TIC							
Total TIC, Volatile	mg/kg	-	0	-	0	0	0.0212 J
Total Alkanes	mg/kg	-	0	-	0	0	0



Table 4-1

All results in mg/kg unless otherwise noted.		milligrams per kilogram	mg/kg
		Estimated Value	J
		Not Sampled	NS
	Exceeds NJDEP Non-Residential Soil Remediation Standard	Not Detected	ND
		Not Analyzed	NA
		Method Detection Limit	( )
		Compound Found in Blank	B
	Health based standard defaults to soil saturation limit		**
		Result is from 2nd run	a b

Table 4-1

Hess Corporation - Former Port Reading Complex (HC-PR) - 750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Analytical Results at AOC 46 – Slop Gasoline Unloading Area

Client Sample ID:		NJ Non-Residential Direct Contact Soil	SGTL-SS-1 (5.5-6.0)	SGTL-SS-2 (0.5-1.0)	SGTL-SS-4 (3.5-4.0)	SGTL-SS-5 (3.5-4.0)
Lab Sample ID:			JB77673-1	JB77673-2	JB77673-3	JB77971-1
Date Sampled:			9/25/2014	9/25/2014	9/25/2014	9/29/2014
Sample Depth:			(5.5-6.0)	(0.5-1.0)	(3.5-4.0)	(3.5-4.0)
Matrix:			Soil	Soil	Soil	Soil
Volatile Organic Compounds						
Acetone	mg/kg	-	ND (0.16)	ND (1.2)	0.0247	0.154
Benzene	mg/kg	5	0.102	0.0917 J	ND (0.00017)	ND (0.00022)
Bromochloromethane	mg/kg	-	ND (0.018)	ND (0.14)	ND (0.00027)	ND (0.00035)
Bromodichloromethane	mg/kg	3	ND (0.013)	ND (0.10)	ND (0.00020)	ND (0.00026)
Bromoform	mg/kg	280	ND (0.011)	ND (0.088)	ND (0.00017)	ND (0.00022)
Bromomethane	mg/kg	59	ND (0.019)	ND (0.14)	ND (0.00028)	ND (0.00037)
2-Butanone (MEK)	mg/kg	44,000	ND (0.12)	ND (0.93)	ND (0.0018)	0.0255
Carbon disulfide	mg/kg	110,000	ND (0.019)	ND (0.14)	0.0011 J	0.0082
Carbon tetrachloride	mg/kg	2	ND (0.0091)	ND (0.070)	ND (0.00014)	ND (0.00018)
Chlorobenzene	mg/kg	7,400	ND (0.0089)	ND (0.069)	ND (0.00014)	ND (0.00018)
Chloroethane	mg/kg	1,100	ND (0.018)	ND (0.14)	ND (0.00028)	ND (0.00036)
Chloroform	mg/kg	2	ND (0.0086)	ND (0.067)	ND (0.00013)	ND (0.00017)
Chloromethane	mg/kg	12	ND (0.019)	ND (0.15)	ND (0.00030)	ND (0.00038)
Cyclohexane	mg/kg	-	0.495	4.05	ND (0.00034)	ND (0.00045)
1,2-Dibromo-3-chloropropane	mg/kg	0.2	ND (0.025)	ND (0.19)	ND (0.00038)	ND (0.00049)
Dibromochloromethane	mg/kg	8	ND (0.011)	ND (0.087)	ND (0.00017)	ND (0.00022)
1,2-Dibromoethane	mg/kg	0.04	ND (0.012)	ND (0.090)	ND (0.00018)	ND (0.00023)
1,2-Dichlorobenzene	mg/kg	59,000	ND (0.012)	ND (0.094)	ND (0.00018)	ND (0.00024)
1,3-Dichlorobenzene	mg/kg	59,000	ND (0.012)	ND (0.097)	ND (0.00019)	ND (0.00025)
1,4-Dichlorobenzene	mg/kg	13	ND (0.011)	ND (0.082)	ND (0.00016)	ND (0.00021)
Dichlorodifluoromethane	mg/kg	230,000	ND (0.033)	ND (0.26)	ND (0.00051)	ND (0.00066)
1,1-Dichloroethane	mg/kg	24	ND (0.012)	ND (0.092)	ND (0.00018)	ND (0.00023)
1,2-Dichloroethane	mg/kg	3	ND (0.016)	ND (0.13)	ND (0.00025)	ND (0.00032)
1,1-Dichloroethene	mg/kg	150	ND (0.018)	ND (0.14)	ND (0.00027)	ND (0.00035)
cis-1,2-Dichloroethene	mg/kg	560	ND (0.017)	ND (0.13)	ND (0.00025)	ND (0.00033)
trans-1,2-Dichloroethene	mg/kg	720	ND (0.012)	ND (0.094)	ND (0.00018)	ND (0.00024)
1,2-Dichloropropane	mg/kg	5	ND (0.011)	ND (0.085)	ND (0.00017)	ND (0.00022)
cis-1,3-Dichloropropene	mg/kg	7	ND (0.0081)	ND (0.063)	ND (0.00012)	ND (0.00016)
trans-1,3-Dichloropropene	mg/kg	7	ND (0.011)	ND (0.084)	ND (0.00017)	ND (0.00021)
Ethylbenzene	mg/kg	110,000	7.45	23	ND (0.00019)	ND (0.00024)
Freon 113	mg/kg	-	ND (0.035)	ND (0.27)	ND (0.00053)	ND (0.00068)
2-Hexanone	mg/kg	-	ND (0.10)	ND (0.79)	ND (0.0016)	ND (0.0020)
Isopropylbenzene	mg/kg	-	2.42	18.4	ND (0.00018)	ND (0.00023)
Methyl Acetate	mg/kg	-	ND (0.070)	ND (0.55)	ND (0.0011)	ND (0.0014)
Methylcyclohexane	mg/kg	-	2.73	22.5	ND (0.00021)	ND (0.00027)
Methyl Tert Butyl Ether	mg/kg	320	ND (0.011)	ND (0.082)	ND (0.00016)	0.00035 J
4-Methyl-2-pentanone(MIBK)	mg/kg	-	ND (0.034)	ND (0.27)	ND (0.00052)	ND (0.00067)
Methylene chloride	mg/kg	97	ND (0.095)	ND (0.74)	ND (0.0015)	0.0025 J
Styrene	mg/kg	260	ND (0.011)	ND (0.089)	ND (0.00018)	ND (0.00023)
Tert Butyl Alcohol	mg/kg	11,000	ND (0.17)	ND (1.3)	ND (0.0027)	ND (0.0034)
1,1,2,2-Tetrachloroethane	mg/kg	3	ND (0.014)	ND (0.11)	ND (0.00021)	ND (0.00027)
Tetrachloroethene	mg/kg	5	ND (0.011)	ND (0.087)	ND (0.00017)	ND (0.00022)
Toluene	mg/kg	91,000	0.0668	0.115 J	ND (0.00023)	ND (0.00029)
1,2,3-Trichlorobenzene	mg/kg	-	ND (0.013)	ND (0.10)	ND (0.00020)	ND (0.00026)
1,2,4-Trichlorobenzene	mg/kg	820	ND (0.011)	ND (0.089)	ND (0.00018)	ND (0.00023)
1,1,1-Trichloroethane	mg/kg	4,200	ND (0.0089)	ND (0.069)	ND (0.00014)	ND (0.00018)
1,1,2-Trichloroethane	mg/kg	6	ND (0.014)	ND (0.11)	ND (0.00022)	ND (0.00028)
Trichloroethene	mg/kg	20	ND (0.013)	ND (0.099)	ND (0.00020)	ND (0.00025)
Trichlorofluoromethane	mg/kg	340,000	ND (0.011)	ND (0.085)	ND (0.00017)	ND (0.00022)
Vinyl chloride	mg/kg	2	ND (0.024)	ND (0.18)	ND (0.00036)	ND (0.00047)
m,p-Xylene	mg/kg	170,000	15.3	9.57	ND (0.00040)	ND (0.00052)
o-Xylene	mg/kg	170,000	0.285	ND (0.11)	ND (0.00021)	ND (0.00027)
Xylene (total)	mg/kg	170,000	15.5	9.57	ND (0.00021)	ND (0.00027)
Volatile Organic Tentatively Identified Compounds						
Total TIC, Volatile	mg/kg	-	32 J (7)	207 J (6)	0	0.074 J (7)
Total Alkanes	mg/kg	-	51.5 J	503 J	0	0.0606 J
Metal Compounds						
Lead	mg/kg	800	11.6	28.8	11.4	-
General Chemistry						
Solids, Percent	%	-	89.7	87.7	85.3	72.1
All results in mg/kg unless otherwise noted.						
					milligrams per kilogram	mg/kg
					Estimated Value	J
					Not Sampled	NS
Exceeds NJDEP Non-Residential Soil Remediation Standard					Not Detected	ND
					Not Analyzed	NA
					Method Detection Limit	( )
					Compound Found in Blank	B
					Health based standard defaults to soil saturation limit	**
					Result is from 2nd run	a b

Table 4-1  
Hess Corporation - Former Port Reading Complex (HC-PR) - 750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Analytical Results at AOC-47 – Bleach Truck Unloading Area

Client Sample ID:		NJ Non-Residential Direct Contact Soil	API-SS-9	API-SS-9
Lab Sample ID:			JB99428-S	JB99428-SR
Date Sampled:			7/17/2015	7/17/2015
Sample Depth:			1.0-1.5 ft	1.0-1.5 ft
Matrix:			Soil	Soil
<b>GC/MS Volatiles (SW846 8260C)</b>				
Acetone	mg/kg	NA	0.0241	-
Benzene	mg/kg	5	ND (0.00013)	-
Bromochloromethane	mg/kg	-	ND (0.00031)	-
Bromodichloromethane	mg/kg	3	ND (0.00015)	-
Bromoform	mg/kg	280	ND (0.00023)	-
Bromomethane	mg/kg	59	ND (0.00036)	-
2-Butanone (MEK)	mg/kg	44000	ND (0.0019)	-
Carbon disulfide	mg/kg	110000	0.00567	-
Carbon tetrachloride	mg/kg	2	ND (0.00023)	-
Chlorobenzene	mg/kg	7400	ND (0.00015)	-
Chloroethane	mg/kg	1100	ND (0.00048)	-
Chloroform	mg/kg	2	ND (0.00015)	-
Chloromethane	mg/kg	12	ND (0.00026)	-
Cyclohexane	mg/kg	-	ND (0.00031)	-
1,2-Dibromo-3-chloropropane	mg/kg	0.2	ND (0.00054)	-
Dibromochloromethane	mg/kg	3	ND (0.00020)	-
1,2-Dibromomethane	mg/kg	0.04	ND (0.00013)	-
1,2-Dichlorobenzene	mg/kg	59000	ND (0.00012)	-
1,3-Dichlorobenzene	mg/kg	59000	ND (0.00016)	-
1,4-Dichlorobenzene	mg/kg	13	ND (0.00022)	-
Dichlorodifluoromethane	mg/kg	230000	ND (0.00036)	-
1,1-Dichloroethane	mg/kg	24	ND (0.00014)	-
1,2-Dichloroethane	mg/kg	3	ND (0.00013)	-
1,1-Dichloroethene	mg/kg	150	ND (0.00059)	-
cis-1,2-Dichloroethene	mg/kg	560	ND (0.00077)	-
trans-1,2-Dichloroethene	mg/kg	720	ND (0.00059)	-
1,2-Dichloropropene	mg/kg	5	ND (0.00024)	-
cis-1,3-Dichloropropene	mg/kg	7	ND (0.00012)	-
trans-1,3-Dichloropropene	mg/kg	7	ND (0.00018)	-
Ethylbenzene	mg/kg	110000	ND (0.00016)	-
Freon 113	mg/kg	-	ND (0.00044)	-
2-Hexanone	mg/kg	-	ND (0.00013)	-
Isopropylbenzene	mg/kg	-	ND (0.00011)	-
Methyl Acetate	mg/kg	NA	ND (0.00085)	-
Methylcyclohexane	mg/kg	-	ND (0.00023)	-
Methyl Tert Butyl Ether	mg/kg	320	ND (0.00015)	-
4-Methyl-2-pentanone(MBK)	mg/kg	-	ND (0.00046)	-
Methylene chloride	mg/kg	97	ND (0.00097)	-
Styrene	mg/kg	260	ND (0.00018)	-
Tert Butyl Alcohol	mg/kg	11000	ND (0.00026)	-
1,1,2,2-Tetrachloroethane	mg/kg	3	ND (0.00017)	-
Tetrachloroethene	mg/kg	5	ND (0.00030)	-
Toluene	mg/kg	91000	0.0024	-
1,2,3-Trichlorobenzene	mg/kg	-	ND (0.00017)	-
1,2,4-Trichlorobenzene	mg/kg	820	ND (0.00017)	-
1,1,1-Trichloroethane	mg/kg	4200	ND (0.00015)	-
1,1,2-Trichloroethane	mg/kg	6	ND (0.00015)	-
Trichloroethene	mg/kg	20	ND (0.00015)	-
Trichlorofluoromethane	mg/kg	340000	ND (0.00025)	-
Vinyl chloride	mg/kg	2	ND (0.00020)	-
m,p-Xylene	mg/kg	170000	ND (0.00025)	-
o-Xylene	mg/kg	170000	ND (0.00027)	-
Xylene (total)	mg/kg	170000	ND (0.00027)	-
<b>GC/MS Volatile TIC</b>				
Total TIC, Volatile	mg/kg	-	0	-
Total TIC, Volatile	mg/kg	-	-	-
Total Alkanes	mg/kg	-	-	-
Total Alkanes	mg/kg	-	0	-
<b>GC/MS Semi-volatiles (SW846 8270D)</b>				
2-Chlorophenol	mg/kg	2200	ND (0.34)	-
4-Chloro-3-methyl phenol	mg/kg	-	ND (0.85)	-
4,4-Dichlorophenol	mg/kg	2100	ND (0.85)	-
2,4-Dimethylphenol	mg/kg	14000	ND (0.85)	-
2,4-Dinitrophenol	mg/kg	1400	ND (0.85)	-
5,6-Dinitro-2-oxepol	mg/kg	68	ND (0.85)	-
2-Methylphenol	mg/kg	3400	ND (0.34)	-
3,4-Methylphenol	mg/kg	-	ND (0.34)	-
2-Nitrophenol	mg/kg	-	ND (0.85)	-
4-Nitrophenol	mg/kg	-	ND (1.7)	-
Pentachlorophenol	mg/kg	0	ND (0.85)	-
Phenol	mg/kg	210000	ND (0.34)	-
2,3,4,6-Tetrachlorophenol	mg/kg	-	ND (0.85)	-
2,4,5-Trichlorophenol	mg/kg	68000	ND (0.85)	-
2,4,6-Trichlorophenol	mg/kg	74	ND (0.85)	-
Acenaphthene	mg/kg	37000	ND (0.17)	-
Acenaphthylene	mg/kg	300000	ND (0.17)	-
Acenaphthene	mg/kg	30000	ND (0.17)	-
Anthracene	mg/kg	30000	ND (0.17)	-
Azarene	mg/kg	2400	ND (0.34)	-
Benzofluoranthene	mg/kg	2	ND (0.17)	-
Benzofluoranthene	mg/kg	0.2	ND (0.17)	-
Benzofluoranthene	mg/kg	2	ND (0.17)	-
Benzofluoranthene	mg/kg	23	ND (0.17)	-
4-Bromophenyl phenyl ether	mg/kg	-	ND (0.34)	-
Butyl benzyl phthalate	mg/kg	14000	ND (0.34)	-
1,1'-Biphenyl	mg/kg	34000	ND (0.34)	-
Benzaldehyde	mg/kg	68000	ND (0.85)	-
2-Chloronaphthalene	mg/kg	-	ND (0.34)	-
4-Chloraniline	mg/kg	-	ND (0.85)	-
Carbazole	mg/kg	96	ND (0.34)	-
Caprolactam	mg/kg	340000	ND (0.34)	-
Chrysene	mg/kg	220	ND (0.17)	-
bis(2-Chloroethoxy)methane	mg/kg	-	ND (0.34)	-
bis(2-Chloroethyl)ether	mg/kg	2	ND (0.34)	-
bis(2-Chloropropoxy)ether	mg/kg	67	ND (0.34)	-
4-Chlorophenyl phenyl ether	mg/kg	-	ND (0.34)	-
2,4-Dinitrotoluene	mg/kg	3	ND (0.17)	-
2,6-Dinitrotoluene	mg/kg	3	ND (0.17)	-
3,3'-Dichlorobenzidine	mg/kg	4	ND (0.34)	-
1,4-Dioxane	mg/kg	-	ND (0.17)	-
Dibenz(a,h)anthracene	mg/kg	0.2	ND (0.17)	-
Dibenzofuran	mg/kg	-	ND (0.34)	-
D,n-butyl phthalate	mg/kg	68000	ND (0.34)	-
D,n-octyl phthalate	mg/kg	27000	ND (0.34)	-
Diethyl phthalate	mg/kg	550000	ND (0.34)	-
Dimethyl phthalate	mg/kg	-	ND (0.34)	-
bis(2-Ethylhexyl)phthalate	mg/kg	140	ND (0.34)	-
Fluoranthene	mg/kg	24000	ND (0.17)	-
Fluorene	mg/kg	24000	ND (0.17)	-
Hexachlorobenzene	mg/kg	1	ND (0.34)	-
Hexachlorobutadiene	mg/kg	25	ND (0.17)	-
Hexachlorocyclopentadiene	mg/kg	110	ND (1.7)	-
Hexachloroethane	mg/kg	140	ND (0.85)	-
Indenol (2,3-diox)pyrene	mg/kg	2	ND (0.17)	-
Isophorone	mg/kg	2000	ND (0.34)	-
2-Methylnaphthalene	mg/kg	2400	ND (0.34)	-
2-Nitroaniline	mg/kg	23000	ND (0.85)	-
3-Nitroaniline	mg/kg	-	ND (0.85)	-
4-Nitroaniline	mg/kg	-	ND (0.85)	-
Naphthalene	mg/kg	17	ND (0.17)	-
Nitrobenzene	mg/kg	340	ND (0.34)	-
N-Nitroso-d,n-propylamine	mg/kg	0.3	ND (0.34)	-
N-Nitrosodiphenylamine	mg/kg	390	ND (0.85)	-
Phenanthrene	mg/kg	300000	ND (0.17)	-
Pyrene	mg/kg	18000	ND (0.17)	-
1,2,4,5-Tetrachlorobenzene	mg/kg	-	ND (0.85)	-

Table 4-1.  
Hess Corporation - Former Port Reading Complex (HC-PR) - 750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Analytical Results at AOC-47 – Bleach Truck Unloading Area

Client Sample ID:		N.J. Non-Residential Direct Contact Soil	API-SS-9	API-SS-9
Lab Sample ID:			JB99428-5	JB99428-5R
Date Sampled:			7/17/2015	7/17/2015
Sample Depth:			1.0-1.5 ft	1.0-1.5 ft
Matrix:			Soil	Soil
<b>GC/MS Semi-volatile THC</b>				
Total THC, Semi-Volatile	mg/kg		15.73 J	-
Total Alkanes	mg/kg			
Total Alkanes	mg/kg		0	
<b>Metals Analysis</b>				
Aluminum	mg/kg	NA	8140	
Antimony	mg/kg	450	<2.1	
Arsenic	mg/kg	19	6.8	
Barium	mg/kg	58000	27.9	-
Beryllium	mg/kg	140	0.44	-
Cadmium	mg/kg	78	<0.53	
Calcium	mg/kg		2980	
Chromium	mg/kg		122	
Chromium, Hexavalent	mg/kg			1.4
Cobalt	mg/kg	590	6.7	-
Copper	mg/kg	45000	39.3	-
Iron	mg/kg		23000	
Lead	mg/kg	800	19.8	
Magnesium	mg/kg		2910	
Manganese	mg/kg	5900	202	
Mercury	mg/kg	65	<0.032	
Nickel	mg/kg	23000	18.5	-
Potassium	mg/kg		<1100	-
Selenium	mg/kg	5700	<2.1	
Silver	mg/kg	5700	<0.53	
Sodium	mg/kg		<1100	
Sulfur	mg/kg			
Thallium	mg/kg	79	<1.1	-
Vanadium	mg/kg	1100	87.8	-
Zinc	mg/kg	110000	134	
<b>General Chemistry</b>				
Nitrogen, Ammonia	mg/kg		<2.5	
Redox Potential Vs H2	mv			531
Solids, Percent	%		95.1	
Sulfide, Neutral Extraction	mg/kg		<4.2	
pH	su		8.43	8.57
All results in mg/kg unless otherwise noted.				
		Exceeds NJDEP Non-Residential Soil Remediation Standard		
mg/kg		milligrams per kilogram		
J		Estimated Value		
NS		Not Sampled		
ND		Not Detected		
NA		Not Analyzed		
( )		Method Detection Limit		
B		Compound Found in Blank		
**		Health based standard defaults to soil saturation limit		
* *		Result is from 2nd run		



Table 4-1  
Hess Corporation - Former Port Reading Complex (HC-PR) - 750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Analytical Results at AOC-48 – Gasoline Dispenser and AST

Client Sample ID:		NJ Non-Residential Direct Contact Soil	EFP-SS-1	EFP-SS-1R
Lab Sample ID:			JB99093-14	JB99944-4
Date Sampled:			7/13/2015	7/23/2015
Depth:			1.5-2.0 ft	1.5-2.0ft
Matrix:			Soil	Soil
<b>GC/MS Volatiles (SW846 8260C)</b>				
Acetone	mg/kg	NA	0.0746	0.0373
Benzene	mg/kg	5	ND (0.00016)	0.0006
Bromochloromethane	mg/kg	-	ND (0.00037)	ND (0.00031)
Bromodichloromethane	mg/kg	3	ND (0.00019)	ND (0.00016)
Bromoform	mg/kg	280	ND (0.00028)	ND (0.00023)
Bromomethane	mg/kg	59	ND (0.00043)	ND (0.00036)
2-Butanone (MEK)	mg/kg	44000	0.0083 J	0.0072 J
Carbon disulfide	mg/kg	110000	0.00056 J	0.00049 J
Carbon tetrachloride	mg/kg	2	ND (0.00027)	ND (0.00023)
Chlorobenzene	mg/kg	7400	ND (0.00018)	ND (0.00015)
Chloroethane	mg/kg	1100	ND (0.00057)	ND (0.00048)
Chloroform	mg/kg	2	ND (0.00018)	ND (0.00015)
Chloromethane	mg/kg	12	ND (0.00031)	ND (0.00026)
Cyclohexane	mg/kg	-	ND (0.00038)	ND (0.00031)
1,2-Dibromo-3-chloropropane	mg/kg	0.2	ND (0.00065)	ND (0.00054)
Dibromochloromethane	mg/kg	8	ND (0.00024)	ND (0.00020)
1,2-Dibromoethane	mg/kg	0.04	ND (0.00016)	ND (0.00013)
1,2-Dichlorobenzene	mg/kg	59000	ND (0.00015)	ND (0.00012)
1,3-Dichlorobenzene	mg/kg	59000	ND (0.00019)	ND (0.00016)
1,4-Dichlorobenzene	mg/kg	13	ND (0.00027)	ND (0.00022)
Dichlorodifluoromethane	mg/kg	230000	ND (0.00043)	ND (0.00036)
1,1-Dichloroethane	mg/kg	24	ND (0.00017)	ND (0.00014)
1,2-Dichloroethane	mg/kg	3	ND (0.00016)	ND (0.00013)
1,1-Dichloroethene	mg/kg	150	ND (0.00071)	ND (0.00059)
cis-1,2-Dichloroethene	mg/kg	560	ND (0.00093)	ND (0.00077)
trans-1,2-Dichloroethene	mg/kg	720	ND (0.00071)	ND (0.00059)
1,2-Dichloropropane	mg/kg	5	ND (0.00028)	ND (0.00024)
cis-1,3-Dichloropropene	mg/kg	7	ND (0.00014)	ND (0.00012)
trans-1,3-Dichloropropene	mg/kg	7	ND (0.00021)	ND (0.00018)
Ethylbenzene	mg/kg	110000	ND (0.00019)	ND (0.00016)
Freon 113	mg/kg	-	ND (0.00053)	ND (0.00045)
2-Hexanone	mg/kg	-	ND (0.0016)	ND (0.0013)
Isopropylbenzene	mg/kg	-	ND (0.00013)	ND (0.00011)
Methyl Acetate	mg/kg	NA	ND (0.0010)	ND (0.00086)
Methylcyclohexane	mg/kg	-	ND (0.00027)	ND (0.00023)
Methyl Tert Butyl Ether	mg/kg	320	0.00034 J	0.00049 J
4-Methyl-2-pentanone(MIBK)	mg/kg	-	ND (0.00055)	ND (0.00046)
Methylene chloride	mg/kg	97	0.0018 J	ND (0.00098)
Styrene	mg/kg	260	ND (0.00021)	ND (0.00018)
Tert Butyl Alcohol	mg/kg	11000	ND (0.0032)	ND (0.0027)
1,1,2,2-Tetrachloroethane	mg/kg	3	ND (0.00021)	ND (0.00017)
Tetrachloroethene	mg/kg	5	ND (0.00036)	ND (0.00030)
Toluene	mg/kg	91000	ND (0.00025)	0.0043
1,2,3-Trichlorobenzene	mg/kg	-	ND (0.00021)	ND (0.00018)
1,2,4-Trichlorobenzene	mg/kg	820	ND (0.00020)	ND (0.00017)
1,1,1-Trichloroethane	mg/kg	4200	ND (0.00018)	ND (0.00015)
1,1,2-Trichloroethane	mg/kg	6	ND (0.00018)	ND (0.00015)
Trichloroethene	mg/kg	20	ND (0.00018)	ND (0.00015)
Trichlorofluoromethane	mg/kg	340000	ND (0.00030)	ND (0.00025)
Vinyl chloride	mg/kg	2	ND (0.00024)	ND (0.00020)
m,p-Xylene	mg/kg	170000	ND (0.00042)	ND (0.00035)
o-Xylene	mg/kg	170000	ND (0.00033)	ND (0.00027)
Xylene (total)	mg/kg	170000	ND (0.00033)	ND (0.00027)
<b>GC/MS Volatile TIC</b>				
Total TIC, Volatile	mg/kg	-	0	0
Total Alkanes	mg/kg	-	0	0
<b>General Chemistry</b>				
Solids, Percent	%	-	77.6	82.4

All results in mg/kg unless otherwise noted.	
	Exceeds NJDEP Non-Residential Soil Remediation Standard
mg/kg	milligrams per kilogram
J	Estimated Value
NS	Not Sampled
ND	Not Detected
NA	Not Analyzed
( )	Method Detection Limit
B	Compound Found in Blank
**	Health based standard defaults to soil saturation limit
a b	Result is from 2nd run

Table 4-1  
Hess Corporation - Former Port Reading Complex (HC-PR) - 750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Analytical Results at AOC 49 - Electrician Shop Diesel/No. 2 Fuel Oil ASTs

Client Sample ID:		NJ Non-Residential Direct Contact Soil	PSRR-SS-2	PSRR-SS-2
Lab Sample ID:			JB98641-7	JB98641-7R
Date Sampled:			7/7/2015	7/7/2015
Sample Depth:			1.0-1.5 ft	1.0-1.5 ft
Matrix:			Soil	Soil
<b>GC/MS Volatiles (SW846 8260C)</b>				
Acetone	mg/kg	NA		0.0389
Benzene	mg/kg	5		ND (0.00098)
Bromochloromethane	mg/kg	-	-	ND (0.0098)
Bromodichloromethane	mg/kg	3		ND (0.0039)
Bromoform	mg/kg	280	-	ND (0.0098)
Bromomethane	mg/kg	59		ND (0.0098)
2-Butanone (MEK)	mg/kg	44000		ND (0.020)
Carbon disulfide	mg/kg	110000	-	0.00071 J
Carbon tetrachloride	mg/kg	2		ND (0.0039)
Chlorobenzene	mg/kg	7400		ND (0.0039)
Chloroethane	mg/kg	1100	-	ND (0.0098)
Chloroform	mg/kg	2		ND (0.0039)
Chloromethane	mg/kg	12	-	ND (0.0098)
Cyclohexane	mg/kg	-	-	ND (0.0039)
1,2-Dibromo-3-chloropropane	mg/kg	0.2		ND (0.0039)
Dibromochloromethane	mg/kg	8	-	ND (0.0039)
1,2-Dibromoethane	mg/kg	0.04		ND (0.0020)
1,2-Dichlorobenzene	mg/kg	59000		ND (0.0020)
1,3-Dichlorobenzene	mg/kg	59000	-	ND (0.0020)
1,4-Dichlorobenzene	mg/kg	13		ND (0.0020)
Dichlorodifluoromethane	mg/kg	230000	-	ND (0.0098)
1,1-Dichloroethane	mg/kg	24	-	0.00057 J
1,2-Dichloroethane	mg/kg	3		ND (0.0020)
1,1-Dichloroethene	mg/kg	150	-	ND (0.0020)
cis-1,2-Dichloroethene	mg/kg	560		ND (0.0020)
trans-1,2-Dichloroethene	mg/kg	720		ND (0.0020)
1,2-Dichloropropane	mg/kg	5	-	ND (0.0039)
cis-1,3-Dichloropropene	mg/kg	7		ND (0.0039)
trans-1,3-Dichloropropene	mg/kg	7		ND (0.0039)
Ethylbenzene	mg/kg	110000	-	ND (0.0020)
Freon 113	mg/kg			ND (0.0098)
2-Hexanone	mg/kg	-	-	ND (0.0098)
Isopropylbenzene	mg/kg			ND (0.0039)
Methyl Acetate	mg/kg	NA		ND (0.0098)
Methylcyclohexane	mg/kg	-	-	0.00059 J
Methyl Tert Butyl Ether	mg/kg	320		ND (0.0020)
4-Methyl-2-pentanone(MIBK)	mg/kg			ND (0.0098)
Methylene chloride	mg/kg	97	-	ND (0.0098)
Styrene	mg/kg	260		ND (0.0039)
Tert Butyl Alcohol	mg/kg	11000	-	-
1,1,2,2-Tetrachloroethane	mg/kg	3	-	ND (0.0039)
Tetrachloroethene	mg/kg	5		ND (0.0039)
Toluene	mg/kg	91000	-	ND (0.0020)
1,2,3-Trichlorobenzene	mg/kg			ND (0.0098)
1,2,4-Trichlorobenzene	mg/kg	820		ND (0.0098)
1,1,1-Trichloroethane	mg/kg	4200	-	ND (0.0039)
1,1,2-Trichloroethane	mg/kg	6		ND (0.0039)
Trichloroethene	mg/kg	20	-	ND (0.0020)
Trichlorofluoromethane	mg/kg	340000	-	ND (0.0098)
Vinyl chloride	mg/kg	2		ND (0.0039)
m,p-Xylene	mg/kg	170000	-	ND (0.0020)
o-Xylene	mg/kg	170000		ND (0.0020)
Xylene (total)	mg/kg	170000		ND (0.0020)
<b>GC/MS Volatile TIC</b>				
Total TIC, Volatile	mg/kg	-	-	0.086 J
Total Alkanes	mg/kg			8.552 J

Table 4-1  
Hess Corporation - Former Port Reading Complex (HC-PR) - 750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Analytical Results at AOC 49 - Electrician Shop Diesel/No. 2 Fuel Oil ASTs

Client Sample ID:		NJ Non-Residential Direct Contact Soil	PSRR-SS-2	PSRR-SS-2
Lab Sample ID:			JB98641-7	JB98641-7R
Date Sampled:			7/7/2015	7/7/2015
Sample Depth:			1.0-1.5 ft	1.0-1.5 ft
Matrix:			Soil	Soil
GC/MS Semi-volatiles (SW846 8270D)				
2-Chlorophenol	mg/kg	2200	-	ND (0.085)
4-Chloro-3-methyl phenol	mg/kg	-	-	ND (0.21)
2,4-Dichlorophenol	mg/kg	2100	-	ND (0.21)
2,4-Dimethylphenol	mg/kg	14000	-	ND (0.21)
2,4-Dinitrophenol	mg/kg	1400	-	ND (0.21)
4,6-Dinitro-o-cresol	mg/kg	68	-	ND (0.21)
2-Methylphenol	mg/kg	3400	-	ND (0.085)
3&4-Methylphenol	mg/kg	-	-	ND (0.085)
2-Nitrophenol	mg/kg	-	-	ND (0.21)
4-Nitrophenol	mg/kg	-	-	ND (0.42)
Pentachlorophenol	mg/kg	10	-	ND (0.21)
Phenol	mg/kg	210000	-	ND (0.085)
2,3,4,6-Tetrachlorophenol	mg/kg	-	-	ND (0.21)
2,4,5-Trichlorophenol	mg/kg	68000	-	ND (0.21) <sup>a</sup>
2,4,6-Trichlorophenol	mg/kg	74	-	ND (0.21)
Acenaphthene	mg/kg	37000	ND (0.042)	ND (0.042)
Acenaphthylene	mg/kg	300000	0.0210 J	ND (0.042)
Acetophenone	mg/kg	5	-	ND (0.21)
Anthracene	mg/kg	30000	0.0512	0.0292 J
Atrazine	mg/kg	2400	-	ND (0.085)
Benzo(a)anthracene	mg/kg	2	0.0838	0.0492
Benzo(a)pyrene	mg/kg	0.2	0.0541	0.0263 J
Benzo(b)fluoranthene	mg/kg	2	0.147	0.0581
Benzo(g,h,i)perylene	mg/kg	30000	0.0456	0.0244 J
Benzo(k)fluoranthene	mg/kg	23	0.0502	0.0208 J
4-Bromophenyl phenyl ether	mg/kg	-	-	ND (0.085) <sup>a</sup>
Butyl benzyl phthalate	mg/kg	14000	-	ND (0.085) <sup>a</sup>
1,1'-Biphenyl	mg/kg	34000	-	ND (0.085) <sup>a</sup>
Benzaldehyde	mg/kg	68000	-	ND (0.21)
2-Chloronaphthalene	mg/kg	-	-	ND (0.085)
4-Chloroaniline	mg/kg	-	-	ND (0.21)
Carbazole	mg/kg	96	-	ND (0.085) <sup>a</sup>
Caprolactam	mg/kg	340000	-	ND (0.085)
Chrysene	mg/kg	230	0.162	0.107
bis(2-Chloroethoxy)methane	mg/kg	-	-	ND (0.085)
bis(2-Chloroethyl)ether	mg/kg	2	-	ND (0.085)
bis(2-Chloroisopropyl)ether	mg/kg	67	-	ND (0.085)
4-Chlorophenyl phenyl ether	mg/kg	-	-	ND (0.085) <sup>a</sup>
2,4-Dinitrotoluene	mg/kg	3	-	ND (0.042)
2,6-Dinitrotoluene	mg/kg	3	-	ND (0.042)
3,3'-Dichlorobenzidine	mg/kg	4	-	ND (0.085)
1,4-Dioxane	mg/kg	-	-	0.0638
Dibenzo(a,h)anthracene	mg/kg	0.2	ND (0.042)	ND (0.042)
Dibenzofuran	mg/kg	-	-	ND (0.085)
Di-n-butyl phthalate	mg/kg	68000	-	ND (0.085) <sup>a</sup>
Di-n-octyl phthalate	mg/kg	27000	-	ND (0.085)
Diethyl phthalate	mg/kg	550000	-	ND (0.085) <sup>a</sup>
Dimethyl phthalate	mg/kg	-	-	ND (0.085) <sup>a</sup>
bis(2-Ethylhexyl)phthalate	mg/kg	140	-	ND (0.085) <sup>a</sup>
Fluoranthene	mg/kg	24000	0.188	0.101
Fluorene	mg/kg	24000	ND (0.042)	ND (0.042)
Hexachlorobenzene	mg/kg	1	-	ND (0.085)
Hexachlorobutadiene	mg/kg	25	-	ND (0.042)
Hexachlorocyclopentadiene	mg/kg	110	-	ND (0.42)
Hexachloroethane	mg/kg	140	-	ND (0.21)
Indeno(1,2,3-cd)pyrene	mg/kg	2	0.0471	0.0247 J
Isophorone	mg/kg	2000	-	ND (0.085)
2-Methylnaphthalene	mg/kg	2400	-	ND (0.085)
2-Nitroaniline	mg/kg	23000	-	ND (0.21)
3-Nitroaniline	mg/kg	-	-	ND (0.21)
4-Nitroaniline	mg/kg	-	-	ND (0.21)
Naphthalene	mg/kg	17	ND (0.042)	ND (0.042)
Nitrobenzene	mg/kg	340	-	ND (0.085)
N-Nitroso-di-n-propylamine	mg/kg	0.3	-	ND (0.085)
N-Nitrosodiphenylamine	mg/kg	390	-	ND (0.21) <sup>a</sup>
Phenanthrene	mg/kg	300000	0.112	0.0367 J
Pyrene	mg/kg	18000	0.153	0.0544
1,2,4,5-Tetrachlorobenzene	mg/kg	-	-	ND (0.21)
GC/MS Semi-volatile TIC				
Total TIC, Semi-Volatile	mg/kg	-	-	4 J
Total Alkanes	mg/kg	-	-	92.8 J
GC Semi-volatiles (NJDEP EPH)				
EPH (C9-C28)	mg/kg	-	756	-
EPH (>C28-C40)	mg/kg	-	218	-
Total EPH (C9-C40)	mg/kg	-	974	-
GC Semi-volatiles (SW846 8082A)				
Aroclor 1016	mg/kg	1	ND (0.040)	-
Aroclor 1221	mg/kg	1	ND (0.074)	-
Aroclor 1232	mg/kg	1	ND (0.042)	-
Aroclor 1242	mg/kg	1	ND (0.057)	-
Aroclor 1248	mg/kg	1	ND (0.039)	-
Aroclor 1254	mg/kg	1	ND (0.056)	-
Aroclor 1260	mg/kg	1	ND (0.053)	-
Aroclor 1268	mg/kg	1	ND (0.039)	-
Aroclor 1262	mg/kg	1	ND (0.036)	-

Table 4-1  
Hess Corporation - Former Port Reading Complex (HC-PR) - 750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Analytical Results at AOC 49 - Electrician Shop Diesel/No. 2 Fuel Oil ASTs

Client Sample ID:		NJ Non-Residential Direct Contact Soil	PSRR-SS-2	PSRR-SS-2
Lab Sample ID:			JB98641-7	JB98641-7R
Date Sampled:			7/7/2015	7/7/2015
Sample Depth:			1.0-1.5 ft	1.0-1.5 ft
Matrix:			Soil	Soil
Metals Analysis				
Aluminum	mg/kg	NA	5660	
Antimony	mg/kg	450	<2.6	
Arsenic	mg/kg	19	25.1	-
Barium	mg/kg	59000	54.6	-
Beryllium	mg/kg	140	0.5	
Cadmium	mg/kg	78	<0.64	
Calcium	mg/kg	-	3070	-
Chromium	mg/kg		15.2	
Chromium, Hexavalent	mg/kg			
Cobalt	mg/kg	590	8.6	-
Copper	mg/kg	45000	81.3	-
Iron	mg/kg		20300	
Lead	mg/kg	800	65.5	
Magnesium	mg/kg	-	3480	-
Manganese	mg/kg	5900	116	-
Mercury	mg/kg	65	0.23	
Nickel	mg/kg	23000	20.2	
Potassium	mg/kg	-	<1300	-
Selenium	mg/kg	5700	<2.6	
Silver	mg/kg	5700	0.93	
Sodium	mg/kg	-	<1300	-
Sulfur	mg/kg	-	-	-
Thallium	mg/kg	79	<1.3	
Vanadium	mg/kg	1100	48.2	
Zinc	mg/kg	110000	67.1	-
General Chemistry				
Solids, Percent	%		77.7	
All results in mg/kg unless otherwise noted.				
		Exceeds NJDEP Non-Residential Soil Remediation Standard		
mg/kg		milligrams per kilogram		
J		Estimated Value		
NS		Not Sampled		
ND		Not Detected		
NA		Not Analyzed		
( )		Method Detection Limit		
B		Compound Found in Blank		
**		Health based standard defaults to soil saturation limit		
a b		Result is from 2nd run		



Table 4-1

Hess Corporation - Former Port Reading Complex (HC-PR) - 750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Analytical Results at AOC-50 – Refinery Warehouse Diesel/No. 2 Fuel Oil ASTs

Client Sample ID:		NJ Non-Residential Direct Contact Soil	WHT-SS-1	WHT-SS-2
Lab Sample ID:			JB98641-11	JB98641-12
Date Sampled:			7/7/2015	7/7/2015
Sample Depth:			1.5-2.0 ft	1.5-2.0 ft
Matrix:			Soil	Soil
GC Semi-volatiles (NJDEP EPH)				
EPH (C9-C28)	mg/kg	-	ND (4.9)	ND (4.7)
EPH (>C28-C40)	mg/kg	-	ND (4.9)	23.2
Total EPH (C9-C40)	mg/kg	54000	ND (4.9)	23.2
Solids, Percent	%	-	83.7	88.6

All results in mg/kg unless otherwise noted.

	Exceeds NJDEP Non-Residential Soil Remediation Standard
mg/kg	milligrams per kilogram
J	Estimated Value
NS	Not Sampled
ND	Not Detected
NA	Not Analyzed
( )	Method Detection Limit
B	Compound Found in Blank
**	Health based standard defaults to soil saturation limit
a b	Result is from 2nd run

Table 4-1  
Hess Corporation - Former Port Reading Complex (HC-PR) - 750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Analytical Results at AOC 52 - TK-7925

Client Sample ID:		NJ Non-Residential Direct Contact Soil	TMTK-SS-1 (2.5-3.0)	TMTK-SS-2 (2.5-3.0)	TMTK-SS-3 (2.0-2.5)	TMTK-SS-4 (2.5-3.0)	TMTK-SS-5 (0.5-1.0)	TMTK-SS-6 (3.5-4.0)
Lab Sample ID:			JB77096-1	JB77096-2	JB77096-3	JB77096-4	JB77096-5	JB77096-6
Date Sampled:			9/19/2014	9/19/2014	9/19/2014	9/19/2014	9/19/2014	9/19/2014
Sample Depth:			2.5-3.0	2.5-3.0	2.0-2.5	2.5-3.0	0.5-1.0	3.5-4.0
Matrix:			Soil	Soil	Soil	Soil	Soil	Soil
<b>Volatile Organic Compounds</b>								
Acetone	mg/kg	-	0.0646	0.0487	0.0242	0.0492	ND (0.30)	0.0241
Benzene	mg/kg	5	ND (0.00016)	ND (0.00019)	ND (0.00017)	ND (0.00018)	ND (0.021)	ND (0.00025)
Bromochloromethane	mg/kg	-	ND (0.00025)	ND (0.00029)	ND (0.00027)	ND (0.00028)	ND (0.033)	ND (0.00039)
Bromodichloromethane	mg/kg	3	ND (0.00019)	ND (0.00021)	ND (0.00020)	ND (0.00020)	ND (0.024)	ND (0.00029)
Bromofrom	mg/kg	280	ND (0.00016)	ND (0.00019)	ND (0.00018)	ND (0.00018)	ND (0.021)	ND (0.00025)
Bromomethane	mg/kg	59	ND (0.00026)	ND (0.00031)	ND (0.00029)	ND (0.00029)	ND (0.034)	ND (0.00041)
2-Butanone (MEK)	mg/kg	44,000	0.0054 J	0.0082 J	ND (0.0018)	0.0088 J	ND (0.22)	ND (0.0027)
Carbon disulfide	mg/kg	110,000	ND (0.00027)	ND (0.00031)	ND (0.00029)	ND (0.00029)	ND (0.034)	ND (0.00041)
Carbon tetrachloride	mg/kg	2	ND (0.00013)	ND (0.00015)	ND (0.00014)	ND (0.00014)	ND (0.017)	ND (0.00020)
Chlorobenzene	mg/kg	7,400	ND (0.00013)	ND (0.00015)	ND (0.00014)	ND (0.00014)	ND (0.016)	ND (0.00020)
Chloroethane	mg/kg	1,100	ND (0.00026)	ND (0.00030)	ND (0.00028)	ND (0.00028)	ND (0.034)	ND (0.00040)
Chloroform	mg/kg	2	ND (0.00012)	ND (0.00014)	ND (0.00013)	ND (0.00013)	ND (0.016)	ND (0.00019)
Chloromethane	mg/kg	12	ND (0.00028)	ND (0.00032)	ND (0.00030)	ND (0.00030)	ND (0.036)	ND (0.00043)
Cyclohexane	mg/kg	-	ND (0.00032)	ND (0.00037)	ND (0.00035)	ND (0.00035)	0.180 J	ND (0.00050)
1,2-Dibromo-3-chloropropane	mg/kg	0.2	ND (0.00035)	ND (0.00041)	ND (0.00038)	ND (0.00039)	ND (0.046)	ND (0.00055)
Dibromochloromethane	mg/kg	8	ND (0.00016)	ND (0.00018)	ND (0.00017)	ND (0.00017)	ND (0.021)	ND (0.00025)
1,2-Dibromoethane	mg/kg	0.04	ND (0.00016)	ND (0.00019)	ND (0.00018)	ND (0.00018)	ND (0.021)	ND (0.00026)
1,2-Dichlorobenzene	mg/kg	59,000	ND (0.00017)	ND (0.00020)	ND (0.00019)	ND (0.00019)	ND (0.022)	ND (0.00027)
1,3-Dichlorobenzene	mg/kg	59,000	ND (0.00018)	ND (0.00021)	ND (0.00019)	ND (0.00019)	ND (0.023)	ND (0.00028)
1,4-Dichlorobenzene	mg/kg	13	ND (0.00015)	ND (0.00017)	ND (0.00016)	ND (0.00016)	ND (0.019)	ND (0.00023)
Dichlorodifluoromethane	mg/kg	230,000	ND (0.00047)	ND (0.00055)	ND (0.00051)	ND (0.00052)	ND (0.062)	ND (0.00074)
1,1-Dichloroethane	mg/kg	24	ND (0.00017)	ND (0.00019)	ND (0.00018)	ND (0.00018)	ND (0.022)	ND (0.00026)
1,2-Dichloroethane	mg/kg	3	ND (0.00023)	ND (0.00027)	ND (0.00025)	ND (0.00025)	ND (0.030)	ND (0.00036)
1,1-Dichloroethene	mg/kg	150	ND (0.00025)	ND (0.00029)	ND (0.00027)	ND (0.00027)	ND (0.032)	ND (0.00039)
cis-1,2-Dichloroethene	mg/kg	560	ND (0.00024)	ND (0.00027)	ND (0.00026)	ND (0.00026)	ND (0.031)	ND (0.00037)
trans-1,2-Dichloroethene	mg/kg	720	ND (0.00017)	ND (0.00020)	ND (0.00019)	ND (0.00019)	ND (0.022)	ND (0.00027)
1,2-Dichloropropane	mg/kg	5	ND (0.00016)	ND (0.00018)	ND (0.00017)	ND (0.00017)	ND (0.020)	ND (0.00024)
cis-1,3-Dichloropropene	mg/kg	7	ND (0.00012)	ND (0.00013)	ND (0.00012)	ND (0.00013)	ND (0.015)	ND (0.00018)
trans-1,3-Dichloropropene	mg/kg	7	ND (0.00015)	ND (0.00018)	ND (0.00017)	ND (0.00017)	ND (0.020)	ND (0.00024)
Ethylbenzene	mg/kg	110,000	ND (0.00018)	ND (0.00020)	ND (0.00019)	ND (0.00019)	0.64	ND (0.00027)
Freon 113	mg/kg	-	ND (0.00049)	ND (0.00057)	ND (0.00053)	ND (0.00054)	ND (0.064)	ND (0.00077)
2-Hexanone	mg/kg	-	ND (0.0014)	ND (0.0017)	ND (0.0016)	ND (0.0016)	ND (0.19)	ND (0.0023)
Isopropylbenzene	mg/kg	-	0.00019 J	ND (0.00019)	0.00023 J	ND (0.00018)	0.265 J	ND (0.00026)
Methyl Acetate	mg/kg	-	ND (0.0010)	ND (0.0012)	ND (0.0011)	ND (0.0011)	ND (0.13)	ND (0.0016)
Methylcyclohexane	mg/kg	-	ND (0.00020)	ND (0.00023)	ND (0.00021)	ND (0.00022)	1.53	ND (0.00031)
Methyl Tert Butyl Ether	mg/kg	320	ND (0.00015)	ND (0.00017)	ND (0.00016)	0.00065 J	ND (0.020)	ND (0.00024)
4-Methyl-2-pentanone(MIBK)	mg/kg	-	ND (0.00049)	ND (0.00056)	ND (0.00053)	ND (0.00053)	ND (0.063)	ND (0.00076)
Methylene chloride	mg/kg	97	ND (0.0014)	ND (0.0016)	ND (0.0015)	ND (0.0015)	ND (0.18)	ND (0.0021)
Styrene	mg/kg	260	ND (0.00016)	ND (0.00019)	ND (0.00018)	ND (0.00018)	ND (0.021)	ND (0.00026)
1,1,2,2-Tetrachloroethane	mg/kg	3	ND (0.00020)	ND (0.00023)	ND (0.00021)	ND (0.00022)	ND (0.026)	ND (0.00031)
Tetrachloroethene	mg/kg	5	ND (0.00016)	ND (0.00019)	ND (0.00017)	ND (0.00018)	ND (0.021)	ND (0.00025)
Toluene	mg/kg	91,000	ND (0.00021)	ND (0.00024)	ND (0.00023)	0.00024 J	0.401	ND (0.00033)
1,2,3-Trichlorobenzene	mg/kg	-	ND (0.00019)	ND (0.00021)	ND (0.00020)	ND (0.00020)	ND (0.024)	ND (0.00029)
1,2,4-Trichlorobenzene	mg/kg	820	ND (0.00016)	ND (0.00019)	ND (0.00018)	ND (0.00018)	ND (0.021)	ND (0.00026)
1,1,1-Trichloroethane	mg/kg	4,200	ND (0.00013)	ND (0.00015)	ND (0.00014)	ND (0.00014)	ND (0.017)	ND (0.00020)
1,1,2-Trichloroethane	mg/kg	6	ND (0.00020)	ND (0.00023)	ND (0.00022)	ND (0.00022)	ND (0.026)	ND (0.00031)
Trichloroethene	mg/kg	20	ND (0.00018)	ND (0.00021)	ND (0.00020)	ND (0.00020)	ND (0.024)	ND (0.00028)
Trichlorofluoromethane	mg/kg	340,000	ND (0.00016)	ND (0.00018)	ND (0.00017)	ND (0.00017)	ND (0.020)	ND (0.00024)
Vinyl chloride	mg/kg	2	ND (0.00034)	ND (0.00039)	ND (0.00037)	ND (0.00037)	ND (0.044)	ND (0.00053)
m,p-Xylene	mg/kg	170,000	ND (0.00037)	ND (0.00043)	ND (0.00040)	ND (0.00041)	5.77	ND (0.00058)
o-Xylene	mg/kg	170,000	ND (0.00020)	ND (0.00023)	ND (0.00021)	ND (0.00021)	3.09	ND (0.00030)
Xylene (total)	mg/kg	170,000	ND (0.00020)	ND (0.00023)	ND (0.00021)	ND (0.00021)	8.86	ND (0.00030)
Total TIC, Volatile	mg/kg	-	0	0	0	0	232.1 J (13)	0
Total Alkanes	mg/kg	-	0	0	0	0	26.6 J	0
<b>Semi-Volatile Organic Compounds</b>								
2-Methylnaphthalene	mg/kg	2400	ND (0.021)	ND (0.021)	ND (0.020)	ND (0.021)	0.967	ND (0.023)
Naphthalene	mg/kg	17	ND (0.010)	ND (0.010)	ND (0.0096)	ND (0.010)	0.768	ND (0.011)
<b>Metal Compounds</b>								
Lead	mg/kg	800	26.2	18.2	13.9	15.8	35.8	4.6
<b>General Chemistry</b>								
Solids, Percent	%	-	87.2	81.9	84.7	79.6	93.6	75
<div> <div>All results in mg/kg unless otherwise noted.</div> <div> <div>milligrams per kilogram</div> <div>mg/kg</div> </div> <div> <div>Estimated Value</div> <div>J</div> </div> <div> <div>Not Sampled</div> <div>NS</div> </div> <div> <div>Not Detected</div> <div>ND</div> </div> <div> <div>Not Analyzed</div> <div>NA</div> </div> <div> <div>Method Detection Limit</div> <div>( )</div> </div> <div> <div>Compound Found in Blank</div> <div>B</div> </div> <div> <div>Health based standard defaults to soil saturation limit</div> <div>**</div> </div> <div> <div>Exceeds NJDEP Non-Residential Soil Remediation Standard</div> <div>a b</div> </div> <div> <div>Result is from 2nd run</div> <div></div> </div> </div>								

Table 4-1  
Hess Corporation - Former Port Reading Complex (HC-PR) - 750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Analytical Results at AOC 53 - Second Tankfield

Client Sample ID:			NJ Non-Residential Direct Contact Soil		TF2-SS-1 (0.5-1.0)	TF2-SS-2 (2.0-2.5)	TF2-SS-3 (1.5-2.0)	TF2-SS-4 (2.0-2.5)	TF2-SS-5 (2.5-3.0)	TF2-SS-6 (2.5-3.0)	TF2-SS-7 (0.5-1.0)	TF2-SS-8 (1.5-2.0)	TF2-SS-9 (1.5-2.0)	TF2-SS-10 (0.5-1.0)	TF2-SS-11 (2.5-3.0)	TF2-SS-12 (1.5-2.0)	TF2-SS-13 (3.0-3.5)	TF2-SS-13 (2.5-3.0)	TF2-SS-14 (2.5-3.0)	TF2-SS-15 (3.0-3.5)	TF2-SS-16 (2.0-2.5)	TF2-SS-17 (1.5-2.0)	TF2-SS-18 (2.5-3.0)	TF2-SS-19 (5.5-6.0)	TF2-SS-20 (1.5-2.0)
Lab Sample ID:					JB77163-1/R	JB77163-2	JB77764-5/R	JB77764-6	JB77163-3	JB77163-4	JB77163-5	JB77676-1	JB77969-1/R	JB77163-6	JB77764-3	JB77676-2	JB77675-1	JB77764-2	JB77764-1	JB77764-4	JB77969-2	JB77969-4	JB77969-3	JB76964-1	JB76964-2
Date Sampled:					9/18/2014	9/18/2014	9/26/2014	9/26/2014	9/18/2014	9/18/2014	9/18/2014	9/24/2014	9/29/2014	9/18/2014	9/26/2014	9/24/2014	9/25/2014	9/26/2014	9/26/2014	9/26/2014	9/29/2014	9/29/2014	9/29/2014	9/17/2014	9/17/2014
Matrix:					Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
NJDEP Extractable Petroleum Hydrocarbons																									
C10-C12 Aromatics	mg/kg	-	ND (0.85)	-	ND (0.18)	30	ND (0.17)	ND (0.18)	ND (0.20)	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.19)	ND (0.21)	ND (0.19)	ND (0.17)	ND (0.20)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.16)	ND (0.19)	6.55
C12-C16 Aromatics	mg/kg	-	41.9	-	ND (0.25)	208	ND (0.25)	ND (0.26)	ND (0.28)	ND (0.26)	ND (0.25)	ND (0.24)	25.1	ND (0.27)	ND (0.30)	ND (0.26)	ND (0.24)	ND (0.28)	ND (0.27)	ND (0.25)	ND (0.26)	ND (0.23)	ND (0.27)	ND (0.22)	
C16-C21 Aromatics	mg/kg	-	244	-	ND (0.37)	454	ND (0.36)	ND (0.38)	ND (0.42)	ND (0.38)	43.4	22.6	150	ND (0.40)	ND (0.45)	ND (0.39)	ND (0.35)	ND (0.41)	ND (0.40)	ND (0.37)	ND (0.38)	ND (0.34)	ND (0.39)	ND (0.32)	
C21-C36 Aromatics	mg/kg	-	308	-	ND (0.59)	507	ND (0.58)	ND (0.61)	ND (0.67)	ND (0.61)	ND (0.59)	76.9	ND (0.63)	ND (0.71)	ND (0.62)	ND (0.56)	ND (0.65)	ND (0.64)	ND (0.59)	ND (0.61)	ND (0.55)	ND (0.63)	ND (0.52)		
Total Aromatics	mg/kg	-	593	-	ND (0.18)	1,200	ND (0.17)	ND (0.18)	ND (0.20)	ND (0.18)	43.4	22.6	252	ND (0.19)	ND (0.21)	ND (0.19)	ND (0.17)	ND (0.20)	ND (0.19)	ND (0.18)	ND (0.16)	ND (0.19)	6.55		
C9-C12 Aliphatics	mg/kg	-	44.6	-	ND (0.16)	208	ND (0.16)	ND (0.17)	ND (0.18)	ND (0.17)	ND (0.16)	19.3	11.8	ND (0.17)	ND (0.20)	ND (0.17)	ND (0.15)	ND (0.18)	ND (0.17)	ND (0.16)	ND (0.17)	ND (0.15)	ND (0.17)	7.45	
C12-C16 Aliphatics	mg/kg	-	268	-	ND (0.25)	751	ND (0.25)	ND (0.26)	ND (0.28)	ND (0.26)	ND (0.26)	52.3	49.3	ND (0.27)	ND (0.30)	ND (0.26)	ND (0.24)	ND (0.28)	ND (0.27)	ND (0.25)	ND (0.26)	ND (0.23)	ND (0.27)	ND (0.22)	
C16-C21 Aliphatics	mg/kg	-	344	-	ND (0.22)	921	ND (0.22)	ND (0.23)	ND (0.25)	31.7	108	38.3	301	ND (0.24)	ND (0.27)	ND (0.23)	ND (0.21)	ND (0.25)	ND (0.24)	ND (0.22)	ND (0.23)	ND (0.20)	ND (0.24)	ND (0.19)	
C21-C40 Aliphatics	mg/kg	-	716	-	ND (0.65)	1,530	ND (0.64)	ND (0.67)	ND (0.73)	36.9	86.7	16.2	139	ND (0.70)	ND (0.79)	ND (0.68)	ND (0.61)	ND (0.72)	ND (0.70)	ND (0.65)	ND (0.67)	ND (0.60)	ND (0.69)	ND (0.57)	
Total Aliphatics	mg/kg	-	1,370	-	ND (0.16)	3,410	ND (0.16)	ND (0.17)	ND (0.18)	68.6	247	123	635	ND (0.17)	ND (0.20)	ND (0.17)	ND (0.15)	ND (0.18)	ND (0.17)	ND (0.16)	ND (0.17)	ND (0.15)	ND (0.17)	7.45	
Total EPH	mg/kg	Calculated Standard	1,970	-	ND (0.16)	4,610	ND (0.16)	ND (0.17)	ND (0.18)	68.6	290	146 [5,900]	887	ND (0.17)	ND (0.20)	ND (0.17)	ND (0.15)	ND (0.18)	ND (0.17)	ND (0.16)	ND (0.17)	ND (0.15)	ND (0.17)	14	
Volatile Organic Compounds																									
Acetone	mg/kg	-	-	0.0293	-	ND (0.13)	-	-	-	-	-	-	0.0105	-	-	-	-	-	-	-	-	-	-	-	-
Benzene	mg/kg	5	-	ND (0.00016)	-	ND (0.0093)	-	-	-	-	-	-	ND (0.00016)	-	-	-	-	-	-	-	-	-	-	-	-
2-Butanone (MEK)	mg/kg	44,000	-	0.0053 J	-	ND (0.098)	-	-	-	-	-	-	ND (0.0017)	-	-	-	-	-	-	-	-	-	-	-	-
Carbon disulfide	mg/kg	110,000	-	0.00037 J	-	ND (0.015)	-	-	-	-	-	-	ND (0.00027)	-	-	-	-	-	-	-	-	-	-	-	-
Carbon tetrachloride	mg/kg	2	-	ND (0.00013)	-	ND (0.0075)	-	-	-	-	-	-	ND (0.00013)	-	-	-	-	-	-	-	-	-	-	-	-
Chlorobenzene	mg/kg	7,400	-	ND (0.00013)	-	0.0274 J	-	-	-	-	-	-	ND (0.00013)	-	-	-	-	-	-	-	-	-	-	-	-
Cyclohexane	mg/kg	-	-	ND (0.00032)	-	0.0652 J	-	-	-	-	-	-	ND (0.00033)	-	-	-	-	-	-	-	-	-	-	-	-
1,2-Dichlorobenzene	mg/kg	59,000	-	ND (0.00017)	-	2.63	-	-	-	-	-	-	ND (0.00017)	-	-	-	-	-	-	-	-	-	-	-	-
1,2-Dichloroethane	mg/kg	3	-	ND (0.00023)	-	ND (0.013)	-	-	-	-	-	-	ND (0.00023)	-	-	-	-	-	-	-	-	-	-	-	-
1,1-Dichloroethene	mg/kg	150	-	ND (0.00025)	-	ND (0.014)	-	-	-	-	-	-	ND (0.00025)	-	-	-	-	-	-	-	-	-	-	-	-
Ethylbenzene	mg/kg	110,000	-	ND (0.00018)	-	0.0204 J	-	-	-	-	-	-	ND (0.00018)	-	-	-	-	-	-	-	-	-	-	-	-
Isopropylbenzene	mg/kg	-	-	0.00044 J	-	1.27	-	-	-	-	-	-	ND (0.00017)	-	-	-	-	-	-	-	-	-	-	-	-
Methylcyclohexane	mg/kg	-	-	ND (0.00020)	-	ND (0.011)	-	-	-	-	-	-	0.00085 J	-	-	-	-	-	-	-	-	-	-	-	-
Methyl Tert Butyl Ether	mg/kg	320	-	ND (0.00015)	-	ND (0.0087)	-	-	-	-	-	-	ND (0.00015)	-	-	-	-	-	-	-	-	-	-	-	-
Methylene chloride	mg/kg	97	-	ND (0.0014)	-	ND (0.078)	-	-	-	-	-	-	ND (0.0014)	-	-	-	-	-	-	-	-	-	-	-	-
1,1,2,2-Tetrachloroethane	mg/kg	3	-	ND (0.00020)	-	ND (0.011)	-	-	-	-	-	-	ND (0.00020)	-	-	-	-	-	-	-	-	-	-	-	-
Tetrachloroethene	mg/kg	5	-	ND (0.00016)	-	ND (0.0093)	-	-	-	-	-	-	ND (0.00016)	-	-	-	-	-	-	-	-	-	-	-	-
Toluene	mg/kg	91,000	-	ND (0.00021)	-	ND (0.012)	-	-	-	-	-	-	ND (0.00021)	-	-	-	-	-	-	-	-	-	-	-	-
Trichloroethene	mg/kg	20	-	ND (0.00018)	-	ND (0.011)	-	-	-	-	-	-	ND (0.00018)	-	-	-	-	-	-	-	-	-	-	-	-
Vinyl chloride	mg/kg	2	-	ND (0.00034)	-	ND (0.020)	-	-	-	-	-	-	ND (0.00034)	-	-	-	-	-	-	-	-	-	-	-	-
Xylene (total)	mg/kg	170,000	-	ND (0.00020)	-	ND (0.011)	-	-	-	-	-	-	ND (0.00020)	-	-	-	-	-	-	-	-	-	-	-	-
Total TIC, Volatile	mg/kg	-	-	0.479 J	-	135.8 J	-	-	-	-	-	-	0.568 J	-	-	-	-	-	-	-	-	-	-	-	-
Total Alkanes	mg/kg	-	-	0.358 J	-	17.1 J	-	-	-	-	-	-	0.252 J	-	-	-	-	-	-	-	-	-	-	-	-
Semi-Volatile Organic Compounds																									
Acenaphthene	mg/kg	37,000	ND (0.048)	0.0608	ND (0.050)	0.947	-	ND (0.052)	ND (0.057)	ND (0.052)	-	ND (0.010)	ND (0.050)	-	-	-	ND (0.053)	-	-	-	-	-	ND (0.054)	ND (0.044)	
Benzo(a)anthracene	mg/kg	2	ND (0.059)	ND (0.012)	ND (0.062)	0.176	-	ND (0.064)	ND (0.070)	ND (0.064)	-	ND (0.012)	ND (0.062)	-	-	-	ND (0.065)	-	-	-	-	-	ND (0.066)	ND (0.054)	
Benzo(a)pyrene	mg/kg	0.2	ND (0.073)	0.0373	ND (0.077)	0.0639	-	ND (0.079)	ND (0.087)	ND (0.079)	-	ND (0.011)	ND (0.076)	-	-	-	ND (0.081)	-	-	-	-	-	ND (0.082)	ND (0.067)	
Benzo(b)fluoranthene	mg/kg	2	ND (0.090)	0.0617	ND (0.094)	0.0467	-	ND (0.098)	ND (0.11)	ND (0.097)	-	ND (0.012)	ND (0.094)	-	-	-	ND (0.099)	-	-	-	-	-	ND (0.10)	ND (0.083)	
Benzo(g,h,i)perylene	mg/kg	30,000	ND (0.11)	0.0646	ND (0.12)	ND (0.013)	-	ND (0.12)	ND (0.13)	ND (0.12)	-	ND (0.013)	ND (0.12)	-	-	-	ND (0.12)	-	-						

Table 4-1  
Hess Corporation - Former Port Reading Complex (HC-PR) - 750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Analytical Results at AOC 55 - Fourth Tankfield

Client Sample ID:		NJ Non-Residential Direct Contact Soil	TF4-SS-1 (10.5-11.0)	TF4-SS-2 (6.0-6.5)	TF4-SS-3 (5.0-5.5)	TF4-SS-4 (3.0-3.5)	TF4-SS-5 (8.0-8.5)	TF4-SS-6 (10.0-10.5)	TF4-SS-7 (6.0-6.5)	TF4-SS-8 (8.5-9.0)	TF4-SS-9 (10.5-11.0)	TF4-SS-10 (10.5-11.0)
Lab Sample ID:			JB76644-1	JB76644-2	JB76647-3	JB76647-4	JB76644-4	JB76644-3	JB76415-1	JB76415-2	JB76415-3/R	JB76415-4
Date Sampled:			9/15/2014	9/15/2014	9/11/2014	9/11/2014	9/15/2014	9/15/2014	9/12/2014	9/12/2014	9/12/2014	9/12/2014
Sample Depth:			10.5-11.0	6.0-6.5	5.0-5.5	3.0-3.5	8.0-8.5	10.0-10.5	6.0-6.5	8.5-9.0	10.5-11.0	10.5-11.0
Matrix:			Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
<b>Volatile Organic Compounds</b>												
Benzene	mg/kg	5	-	-	-	-	-	-	-	-	0.0559 J	-
Carbon disulfide	mg/kg	110,000	-	-	-	-	-	-	-	-	0.126 J	-
Chlorobenzene	mg/kg	7,400	-	-	-	-	-	-	-	-	0.169 J	-
Ethylbenzene	mg/kg	110,000	-	-	-	-	-	-	-	-	0.135	-
Methyl Acetate	mg/kg	-	-	-	-	-	-	-	-	-	0.977	-
Methyl Tert Butyl Ether	mg/kg	320	-	-	-	-	-	-	-	-	ND (0.022)	-
Tetrachloroethene	mg/kg	5	-	-	-	-	-	-	-	-	ND (0.023)	-
Toluene	mg/kg	91,000	-	-	-	-	-	-	-	-	0.0659 J	-
1,1,1-Trichloroethane	mg/kg	4,200	-	-	-	-	-	-	-	-	ND (0.018)	-
1,1,2-Trichloroethane	mg/kg	6	-	-	-	-	-	-	-	-	ND (0.029)	-
Trichloroethene	mg/kg	20	-	-	-	-	-	-	-	-	ND (0.026)	-
Vinyl chloride	mg/kg	2	-	-	-	-	-	-	-	-	ND (0.049)	-
m,p-Xylene	mg/kg	170,000	-	-	-	-	-	-	-	-	0.277	-
o-Xylene	mg/kg	170,000	-	-	-	-	-	-	-	-	0.193	-
Xylene (total)	mg/kg	170,000	-	-	-	-	-	-	-	-	0.47	-
Total TIC, Volatile	mg/kg	-	-	-	-	-	-	-	-	-	13.54 J (12)	-
Total Alkanes	mg/kg	-	-	-	-	-	-	-	-	-	1.2 J	-
<b>Semi-Volatile Organic Compounds</b>												
Acenaphthene	mg/kg	37,000	ND (0.072)	ND (0.050)	ND (0.042)	ND (0.044)	ND (0.049)	2.38	ND (0.043)	ND (0.048)	0.410 J	0.194
Acenaphthylene	mg/kg	300,000	ND (0.063)	ND (0.044)	ND (0.037)	ND (0.039)	ND (0.043)	ND (0.049)	ND (0.038)	ND (0.042)	ND (0.067)	0.085
Anthracene	mg/kg	30,000	0.315 J	ND (0.044)	ND (0.037)	ND (0.039)	ND (0.043)	3.24	ND (0.038)	ND (0.042)	0.697	0.191
2-Chlorophenol	mg/kg	2,200	-	-	-	-	-	-	-	-	-	ND (0.053)
Benzo(a)anthracene	mg/kg	2	0.554	ND (0.062)	ND (0.052)	ND (0.055)	ND (0.061)	0.775	ND (0.053)	ND (0.059)	0.942	0.243
4-Chloro-3-methyl phenol	mg/kg	-	-	-	-	-	-	-	-	-	-	ND (0.053)
2,4-Dichlorophenol	mg/kg	2,100	-	-	-	-	-	-	-	-	-	ND (0.086)
Benzo(a)pyrene	mg/kg	0.2	0.502	ND (0.077)	ND (0.064)	ND (0.067)	ND (0.075)	0.384	ND (0.065)	ND (0.074)	0.697	0.207
2,4-Dimethylphenol	mg/kg	14,000	-	-	-	-	-	-	-	-	-	ND (0.089)
Benzo(b)fluoranthene	mg/kg	2	0.572	ND (0.095)	ND (0.079)	ND (0.083)	ND (0.092)	0.495	ND (0.081)	ND (0.091)	0.664	0.288
2,4-Dinitrophenol	mg/kg	1,400	-	-	-	-	-	-	-	-	-	ND (0.065)
Benzo(g,h,i)perylene	mg/kg	30,000	0.271 J	ND (0.12)	ND (0.099)	ND (0.10)	ND (0.12)	0.172 J	ND (0.10)	ND (0.11)	0.449 J	0.146
Benzo(k)fluoranthene	mg/kg	23	0.161 J	ND (0.095)	ND (0.079)	ND (0.083)	ND (0.092)	0.170 J	ND (0.081)	ND (0.091)	0.257 J	0.0718
4,6-Dinitro-o-cresol	mg/kg	68	-	-	-	-	-	-	-	-	-	ND (0.065)
Chrysene	mg/kg	230	0.464	ND (0.065)	ND (0.054)	ND (0.057)	ND (0.063)	0.708	ND (0.055)	ND (0.062)	0.886	0.309
Dibenz(a,h)anthracene	mg/kg	0.2	ND (0.11)	ND (0.077)	ND (0.064)	ND (0.067)	ND (0.075)	ND (0.085)	ND (0.065)	ND (0.074)	ND (0.12)	0.0415 J
Fluoranthene	mg/kg	24,000	0.854	ND (0.044)	ND (0.037)	ND (0.039)	0.134 J	4.14	ND (0.038)	ND (0.042)	2.13	0.626
2-Methylphenol	mg/kg	3,400	-	-	-	-	-	-	-	-	-	ND (0.061)
Fluorene	mg/kg	24,000	ND (0.080)	ND (0.056)	ND (0.047)	ND (0.049)	ND (0.055)	2.19	ND (0.048)	ND (0.054)	ND (0.085)	ND (0.017)
3,8,4-Methylphenol	mg/kg	-	-	-	-	-	-	-	-	-	-	ND (0.068)
Indeno(1,2,3-cd)pyrene	mg/kg	2	0.192 J	ND (0.12)	ND (0.096)	ND (0.10)	ND (0.11)	0.147 J	ND (0.098)	ND (0.11)	0.421 J	0.143
2-Nitrophenol	mg/kg	-	-	-	-	-	-	-	-	-	-	ND (0.056)
Naphthalene	mg/kg	17	0.350 J	0.149 J	ND (0.037)	ND (0.039)	0.124 J	0.782	ND (0.038)	ND (0.042)	0.486	0.0319 J
4-Nitrophenol	mg/kg	-	-	-	-	-	-	-	-	-	-	ND (0.090)
Pentachlorophenol	mg/kg	10	-	-	-	-	-	-	-	-	-	ND (0.091)
Phenanthrene	mg/kg	300,000	0.252 J	ND (0.044)	ND (0.037)	ND (0.039)	ND (0.043)	4.79	ND (0.038)	ND (0.042)	0.443 J	0.074
Pyrene	mg/kg	18,000	1.47	ND (0.059)	ND (0.049)	ND (0.052)	ND (0.058)	3.1	ND (0.050)	ND (0.057)	2.32	0.605
Total TIC, Semi-Volatile	mg/kg	-	-	-	-	-	-	-	-	-	-	15.36 J (22)
Total Alkanes	mg/kg	-	-	-	-	-	-	-	-	-	-	2.01 J
<b>New Jersey Department of Environmental Protection Extractable Petroleum Hydrocarbons</b>												
C10-C12 Aromatics	mg/kg	-	ND (0.25)	ND (0.18)	ND (0.15)	ND (0.16)	ND (0.17)	ND (0.20)	ND (0.15)	ND (0.17)	ND (0.27)	-
C12-C16 Aromatics	mg/kg	-	ND (0.36)	ND (0.25)	ND (0.21)	ND (0.22)	ND (0.25)	13.9	ND (0.21)	ND (0.24)	35.5	-
C16-C21 Aromatics	mg/kg	-	88.4	ND (0.37)	ND (0.31)	ND (0.32)	ND (0.36)	110	ND (0.31)	ND (0.35)	328	-
C21-C36 Aromatics	mg/kg	-	213	ND (0.59)	ND (0.49)	ND (0.52)	ND (0.58)	83.1	ND (0.50)	ND (0.57)	441	-
Total Aromatics	mg/kg	-	301	ND (0.18)	ND (0.15)	ND (0.16)	ND (0.17)	207	ND (0.15)	ND (0.17)	805	-
C9-C12 Aliphatics	mg/kg	-	ND (0.23)	ND (0.16)	ND (0.14)	ND (0.14)	ND (0.16)	13.9	ND (0.14)	ND (0.16)	98.5	-
C12-C16 Aliphatics	mg/kg	-	42.0	ND (0.25)	ND (0.21)	ND (0.22)	ND (0.25)	61.3	ND (0.21)	ND (0.24)	421	-
C16-C21 Aliphatics	mg/kg	-	71.6	ND (0.22)	ND (0.18)	ND (0.19)	ND (0.22)	89.1	ND (0.19)	ND (0.21)	506	-
C21-C40 Aliphatics	mg/kg	-	169	ND (0.65)	ND (0.54)	ND (0.57)	ND (0.63)	164	ND (0.55)	ND (0.62)	1,040	-
Total Aliphatics	mg/kg	-	283	ND (0.16)	ND (0.14)	ND (0.14)	ND (0.16)	328	ND (0.14)	ND (0.16)	2,060	-
Total EPH	mg/kg	SS <sup>1</sup>	584 [3,200]	ND (0.16)	ND (0.14)	ND (0.14)	ND (0.16)	535 [4,100]	ND (0.14)	ND (0.16)	2,870 [5,200]	-
<b>Metal Compounds</b>												
Aluminum	mg/kg	-	-	-	-	-	-	-	-	-	-	14,600
Antimony	mg/kg	450	-	-	-	-	-	-	-	-	-	4.7
Arsenic	mg/kg	19	-	-	-	-	-	-	-	-	-	115
Barium	mg/kg	59,000	-	-	-	-	-	-	-	-	-	419
Beryllium	mg/kg	140	-	-	-	-	-	-	-	-	-	0.9
Cadmium	mg/kg	78	-	-	-	-	-	-	-	-	-	4.2
Calcium	mg/kg	-	-	-	-	-	-	-	-	-	-	2,810
Chromium	mg/kg	-	-	-	-	-	-	-	-	-	-	133
Cobalt	mg/kg	590	-	-	-	-	-	-	-	-	-	9.3
Copper	mg/kg	45,000	-	-	-	-	-	-	-	-	-	519
Iron	mg/kg	-	-	-	-	-	-	-	-	-	-	32,200
Lead	mg/kg	800	-	-	-	-	-	-	-	-	-	283
Magnesium	mg/kg	-	-	-	-	-	-	-	-	-	-	5,170
Manganese	mg/kg	5,900	-	-	-	-	-	-	-	-	-	289
Mercury	mg/kg	65	-	-	-	-	-	-	-	-	-	8.6
Nickel	mg/kg	23,000	-	-	-	-	-	-	-	-	-	38.6
Potassium	mg/kg	-	-	-	-	-	-	-	-	-	-	2,610
Selenium	mg/kg	5,700	-	-	-	-	-	-	-	-	-	9.5
Silver	mg/kg	5,700	-	-	-	-	-	-	-	-	-	3.8
Sodium	mg/kg	-	-	-	-	-	-	-	-	-	-	1,420
Thallium	mg/kg	79	-	-	-	-	-	-	-	-	-	ND (1.0)
Vanadium	mg/kg	1,100	-	-	-	-	-	-	-	-	-	43.8
Zinc	mg/kg	110,000	-	-	-	-	-	-	-	-	-	417
<b>General Chemistry</b>												
Solids, Percent	%	-	60.4	88.2	96	95.7	85.6	78.4	95.1	89.4	59.8	87.6
<p>All results in mg/kg unless otherwise noted.</p> <p>Exceeds NJDEP Non-Residential Soil Remediation Standard</p> <p>SS = Sample-specific Standard (EPH Category 2 contingency analyses run for fuel oils and crude oil as required in Table 2-1 of NJAC 7:26E Technical Requirements for Site Remediation)</p> <p><sup>1</sup> = Non-residential EPH Soil Remediation Criteria defaults to 17,000 mg/kg (detection of free product)</p>												
											milligrams per kilogram	mg/kg
											Estimated Value	J
											Not Sampled	NS
											Not Detected	ND
											Not Analyzed	NA
											Method Detection Limit	( )
											Compound Found in Blank	B
											Health based standard defaults to soil saturation limit	**
											Result is from 2nd run	a b



Table 4-1  
Hess Corporation - Former Port Reading Complex (HC-PR)  
750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Analytical Results at AOC 56 - Second Reserve Tankfield

Client Sample ID:		NJ Non-Residential Direct Contact Soil	2RTF-SS-1 (1.5-2.0)	2RTF-SS-2 (2.5-3.0)	2RTF-SS-3 (2.5-3.0)	2RTF-SS-4 (2.5-3.0)	2RTF-SS-5 (10.0-10.5)	2RTF-SS-6 (11.0-11.5)	2RTF-SS-7 (10.0-10.5)	2RTF-SS-8 (10.5-11.0)	2RTF-SS-9 (1.5-2.0)	2RTF-SS-10 (11.0-11.5)	2RTF-SS-11 (7.5-8.0)	2RTF-SS-12 (7.0-7.5)	2RTF-SS-13 (10.0-10.5)	2RTF-SS-14 (7.0-7.5)	2RTF-SS-15 (13.5-14.0)	2RTF-SS-16 (8.5-9.0)	2RTF-SS-17 (4.5-5.0)	2RTF-SS-18 (6.0-6.5)	2RTF-SS-19 (9.0-9.5)	2RTF-SS-20 (8.0-8.5)	2RTF-SS-21 (5.5-6.0)	2RTF-SS-22 (9.5-10.0)	2RTF-SS-23 (6.0-6.5)	2RTF-SS-24 (4.5-5.0)	2RTF-SS-25 (2.5-3.0)	2RTF-SS-26 (2.0-2.5)	2RTF-SS-27 (6.0-6.5)	2RTF-SS-28 (10.0-10.5)	2RTF-SS-29 (7.5-8.0)	2RTF-SS-30 (7.5-8.0)	2RTF-SS-31 (6.5-7.0)	2RTF-SS-32 (8.5-9.0)	2RTF-SS-33 (4.0-4.5)	2RTF-SS-34 (6.0-6.5)	2RTF-SS-35 (10.5-11.0)	2RTF-SS-36 (5.5-6.0)	2RTF-SS-37 (11.0-11.5)	2RTF-SS-38 (8.5-9.0)	2RTF-SS-39 (6.5-7.0)	2RTF-SS-40 (8.0-8.5)	2RTF-SS-41 (6.5-7.0)	2RTF-SS-42 (7.0-7.5)	2RTF-SS-43 (5.0-5.5)	2RTF-SS-44 (6.0-6.5)	2RTF-SS-45 (8.5-9.0)		
Lab Sample ID:			JB75362-2	JB75362-4	JB75362-1	JB75546-1	JB75365-1	JB75365-3	JB75365-2	JB75362-3	JB75546-2	JB75728-1	JB75636-3/3R	JB75728-2	JB75636-4	JB75546-4	JB75546-3	JB75636-6	JB75636-5	JB76153-3	JB76153-4	JB76153-2	JB75728-3/3R	JB75634-1/1R	JB75534-2	JB75546-5	JB75546-6	JB76153-1	JB75983-4/4R	JB75983-3/3R	JB75983-6	JB75636-1	JB75636-2	JB75365-4	JB75728-4	JB75983-7/7R	JB75983-1/1R	JB75983-2/2R	JB75983-5/5R	JB76467-1	JB76125-1/1R	JB76125-2	JB76125-3	JB76125-4/4R	JB76125-5	JB76125-6	JB76467-2/2A		
Date Sampled:			8/28/2014	8/28/2014	8/28/2014	9/2/2014	8/29/2014	8/29/2014	8/29/2014	8/28/2014	9/2/2014	9/5/2014	9/4/2014	9/4/2014	9/4/2014	9/4/2014	9/2/2014	9/2/2014	9/4/2014	9/4/2014	9/9/2014	9/9/2014	9/9/2014	9/5/2014	9/3/2014	9/3/2014	9/2/2014	9/2/2014	9/9/2014	9/6/2014	9/6/2014	9/6/2014	9/6/2014	9/4/2014	9/4/2014	8/29/2014	9/5/2014	9/8/2014	9/6/2014	9/6/2014	9/11/2014	9/10/2014	9/10/2014	9/10/2014	9/10/2014	9/10/2014	9/11/2014		
Matrix:			Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil		
Volatile Organic Compounds																																																	
Benzene	mg/kg	5	-	-	-	-	-	-	-	-	-	-	0.093	-	-	-	-	-	-	-	-	-	ND (0.011)	0.0158 J	-	-	-	-	-	0.031	0.0223 J	-	-	-	-	-	-	ND (0.0094)	ND (0.012)	ND (0.0095)	ND (0.011)	-	ND (0.00020)	-	-	ND (0.00026)	-	-	ND (0.012)
Bromochloromethane	mg/kg	-	-	-	-	-	-	-	-	-	-	-	ND (0.031)	-	-	-	-	-	-	-	-	-	ND (0.017)	ND (0.021)	-	-	-	-	-	ND (0.017)	ND (0.016)	-	-	-	-	-	-	ND (0.015)	ND (0.019)	ND (0.015)	ND (0.017)	-	ND (0.00031)	-	-	ND (0.00041)	-	-	ND (0.018)
Bromodichloromethane	mg/kg	3	-	-	-	-	-	-	-	-	-	-	ND (0.023)	-	-	-	-	-	-	-	-	-	ND (0.013)	ND (0.015)	-	-	-	-	-	ND (0.013)	ND (0.012)	-	-	-	-	-	-	ND (0.011)	ND (0.014)	ND (0.011)	ND (0.012)	-	ND (0.00023)	-	-	ND (0.00030)	-	-	ND (0.013)
Bromoform	mg/kg	280	-	-	-	-	-	-	-	-	-	-	ND (0.020)	-	-	-	-	-	-	-	-	-	ND (0.011)	ND (0.014)	-	-	-	-	-	ND (0.011)	ND (0.0094)	ND (0.012)	ND (0.0095)	ND (0.011)	-	-	-	ND (0.0094)	ND (0.012)	ND (0.0095)	ND (0.011)	-	ND (0.00020)	-	-	ND (0.00026)	-	-	ND (0.012)
Bromomethane	mg/kg	59	-	-	-	-	-	-	-	-	-	-	ND (0.033)	-	-	-	-	-	-	-	-	-	ND (0.018)	ND (0.022)	-	-	-	-	-	ND (0.018)	ND (0.017)	-	-	-	-	-	-	ND (0.015)	ND (0.020)	ND (0.016)	ND (0.018)	-	ND (0.00032)	-	-	ND (0.00043)	-	-	ND (0.019)
2-Butanone (MEK)	mg/kg	44,000	-	-	-	-	-	-	-	-	-	-	ND (0.21)	-	-	-	-	-	-	-	-	-	ND (0.12)	ND (0.14)	-	-	-	-	-	ND (0.12)	ND (0.11)	-	-	-	-	-	-	ND (0.099)	ND (0.13)	ND (0.10)	ND (0.11)	-	ND (0.00021)	-	-	ND (0.00028)	-	-	ND (0.12)
Carbon disulfide	mg/kg	110,000	-	-	-	-	-	-	-	-	-	-	0.0488 J	-	-	-	-	-	-	-	-	-	ND (0.018)	ND (0.022)	-	-	-	-	-	ND (0.018)	ND (0.017)	-	-	-	-	-	-	ND (0.015)	ND (0.020)	ND (0.016)	ND (0.018)	-	0.00059 J	-	-	ND (0.00043)	-	-	ND (0.019)
Carbon tetrachloride	mg/kg	2	-	-	-	-	-	-	-	-	-	-	ND (0.016)	-	-	-	-	-	-	-	-	-	ND (0.0088)	ND (0.011)	-	-	-	-	-	ND (0.0087)	ND (0.0085)	-	-	-	-	-	-	ND (0.0075)	ND (0.0076)	ND (0.0085)	-	ND (0.00016)	-	-	ND (0.00021)	-	-	ND (0.0092)	
Chlorobenzene	mg/kg	7,400	-	-	-	-	-	-	-	-	-	-	ND (0.016)	-	-	-	-	-	-	-	-	-	ND (0.0086)	ND (0.011)	-	-	-	-	-	ND (0.0085)	ND (0.0083)	-	-	-	-	-	-	ND (0.0074)	0.937	0.518	0.117 J	-	ND (0.00015)	-	-	ND (0.00020)	-	-	ND (0.0091)
Chloroethane	mg/kg	1,100	-	-	-	-	-	-	-	-	-	-	ND (0.032)	-	-	-	-	-	-	-	-	-	ND (0.018)	ND (0.022)	-	-	-	-	-	ND (0.018)	ND (0.017)	-	-	-	-	-	-	ND (0.015)	ND (0.020)	ND (0.015)	ND (0.017)	-	ND (0.00032)	-	-	ND (0.00042)	-	-	ND (0.019)
Chloroform	mg/kg	2	-	-	-	-	-	-	-	-	-	-	ND (0.015)	-	-	-	-	-	-	-	-	-	ND (0.0084)	ND (0.010)	-	-	-	-	-	ND (0.0083)	ND (0.0080)	-	-	-	-	-	-	ND (0.0071)	ND (0.0093)	ND (0.0072)	ND (0.0081)	-	ND (0.00015)	-	-	ND (0.00020)	-	-	ND (0.0086)
Chloromethane	mg/kg	12	-	-	-	-	-	-	-	-	-	-	ND (0.034)	-	-	-	-	-	-	-	-	-	ND (0.019)	ND (0.023)	-	-	-	-	-	ND (0.019)	ND (0.018)	-	-	-	-	-	-	ND (0.016)	ND (0.021)	ND (0.016)	ND (0.018)	-	ND (0.00034)	-	-	ND (0.00045)	-	-	ND (0.020)
Cyclohexane	mg/kg	-	-	-	-	-	-	-	-	-	-	-	0.0513 J	-	-	-	-	-	-	-	-	-	ND (0.022)	0.0602 J	-	-	-	-	-	ND (0.022)	ND (0.021)	-	-	-	-	-	-	ND (0.019)	ND (0.024)	ND (0.019)	ND (0.021)	-	ND (0.00039)	-	-	ND (0.00052)	-	-	ND (0.023)
1,2-Dibromo-3-chloropropane	mg/kg	0.2	-	-	-	-	-	-	-	-	-	-	ND (0.044)	-	-	-	-	-	-	-	-	-	ND (0.024)	ND (0.030)	-	-	-	-	-	ND (0.024)	ND (0.023)	-	-	-	-	-	-	ND (0.021)	ND (0.027)	ND (0.021)	ND (0.023)	-	ND (0.00043)	-	-	ND (0.00057)	-	-	ND (0.025)
Dibromochloromethane	mg/kg	8	-	-	-	-	-	-	-	-	-	-	ND (0.020)	-	-	-	-	-	-	-	-	-	ND (0.011)	ND (0.013)	-	-	-	-	-	ND (0.011)	ND (0.010)	-	-	-	-	-	-	ND (0.0093)	ND (0.012)	ND (0.0094)	ND (0.011)	-	ND (0.00019)	-	-	ND (0.00026)	-	-	ND (0.011)
1,2-Dibromoethane	mg/kg	0.04	-	-	-	-	-	-	-	-	-	-	ND (0.020)	-	-	-	-	-	-	-	-	-	ND (0.011)	ND (0.014)	-	-	-	-	-	ND (0.011)	ND (0.011)	-	-	-	-	-	-	ND (0.0096)	ND (0.013)	ND (0.0097)	ND (0.011)	-	ND (0.00020)	-	-	ND (0.00027)	-	-	ND (0.012)
cis-1,2-Dichloroethene	mg/kg	560	-	-	-	-	-	-	-	-	-	-	ND (0.029)	-	-	-	-	-	-	-	-	-	ND (0.016)	ND (0.020)	-	-	-	-	-	ND (0.016)	ND (0.015)	-	-	-	-	-	-	ND (0.014)	0.0924	ND (0.014)	ND (0.016)	-	ND (0.00029)	-	-	ND (0.00038)	-	-	ND (0.017)
trans-1,2-Dichloroethene	mg/kg	720	-	-	-	-	-	-	-	-	-	-	ND (0.021)	-	-	-	-	-	-	-	-	-	ND (0.012)	ND (0.014)	-	-	-	-	-	ND (0.012)	ND (0.011)	-	-	-	-	-	-	ND (0.010)	ND (0.013)	ND (0.010)	ND (0.011)	-	ND (0.00021)	-	-	ND (0.00028)	-	-	ND (0.012)
1,2-Dichloropropane	mg/kg	5	-	-	-	-	-	-	-	-	-	-	ND (0.019)	-	-	-	-	-	-	-	-	-	ND (0.011)	ND (0.013)	-	-	-	-	-	ND (0.011)	ND (0.010)	-	-	-	-	-	-	ND (0.0090)	ND (0.012)	ND (0.0091)	ND (0.010)	-	ND (0.00019)	-	-	ND (0.00025)	-	-	ND (0.011)
cis-1,3-Dichloropropene	mg/kg	7	-	-	-	-	-	-	-	-	-	-	ND (0.014)	-	-	-	-	-	-	-	-	-	ND (0.0079)	ND (0.0096)	-	-	-	-	-	ND (0.0078)	ND (0.0076)	-	-	-	-	-	-	ND (0.0067)	ND (0.0068)	ND (0.0068)	ND (0.0076)	-	ND (0.00014)	-	-	ND (0.00019)	-	-	ND (0.0083)
trans-1,3-Dichloropropene	mg/kg	7	-	-	-	-	-	-	-	-	-	-	ND (0.019)	-	-	-	-																																

Table 4-1  
Hess Corporation - Former Port Reading Complex (HC-PR)  
750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Analytical Results at AOC 56 - Second Reserve Tankfield

[illegible]



Table 4-1  
Hess Corporation - Former Port Reading Complex (HC-PR) - 750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Analytical Results at AOC 57 - Day Tankfield

Client Sample ID:		NJ Non-Residential Direct Contact Soil	DTF-SS-1 (2.5-3.0)	DTF-SS-2 (3.5-4.0)	DTF-SS-3 (0.5-1.0)	DTF-SS-4 (0.5-1.0)	DTF-SS-5 (2.5-3.0)	DTF-SS-6 (0.5-1.0)	DTF-SS-7 (3.5-4.0)	DTF-SS-8 (1.0-1.5)	DTF-SS-9 (3.0-3.5)	DTF-SS-10 (0.5-1.0)	DTF-SS-11 (1.0-1.5)	DTF-SS-12 (0.5-1.0)	DTF-SS-13 (3.5-4.0)	DTF-SS-14 (1.0-1.5)	DTF-SS-15 (0.5-1.0)	DTF-SS-16 (0.5-1.0)	DTF-SS-17 (0.5-1.0)	DTF-SS-18 (2.5-3.0)	DTF-SS-19 (2.5-3.0)	DTF-SS-20 (1.0-1.5)	DTF-SS-21 (0.5-1.0)	DTF-SS-22 (1.5-2.0)
Lab Sample ID:			JB79238-4	JB79238-3/3T	JB79238-2	JB79238-1/1R	JB79494-1/1R	JB79494-2/2T	JB79494-4	JB79238-5	JB79301-1	JB79301-2/2R	JB79301-3/3R	JB79301-4	JB79511-2/2R	JB79511-3	JB79511-4	JB79121-1/1R	JB79121-2	JB79121-3	JB79121-4/4R	JB79121-5/5T	JB79511-1	
Date Sampled:			10/15/2014	10/15/2014	10/15/2014	10/15/2014	10/17/2014	10/17/2014	10/17/2014	10/17/2014	10/17/2014	10/15/2014	10/14/2014	10/14/2014	10/14/2014	10/16/2014	10/16/2014	10/16/2014	10/13/2014	10/13/2014	10/13/2014	10/13/2014	10/13/2014	
Matrix:			Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	
New Jersey Department of Environmental Protection Extractable Petroleum Hydrocarbons																								
EPH (C9-C28)	mg/kg		3,920	5,110a	1,360	6,680	3,820	2,710	403	112	1,120	6,550	4,730	1,130	129	1,790	839	74.8	3,540	65	459	2,040	9,590	2,260
EPH (>C28-C40)	mg/kg		ND (3.2)	221	318	934	123	298	109	91.8	89	544	642	731	58.1	140	116	71.1	ND (33)	ND (3.4)	64.2	ND (39)	ND (68)	162
Total EPH (C9-C40)	mg/kg	54,000***	3,920	5,330a	1,680	7,610	3,940	3,010	512	204	1,210	7,100	5,370	1,860	187	1,930	956	146	3,540	65	523	2,040	9,590	2,420
Volatile Organic Compounds																								
Acetone	mg/kg	-	ND (0.15)	ND (0.39)	ND (0.15)	0.0644	ND (0.14)	ND (0.13)	ND (0.21)	0.133	ND (0.15)	ND (0.14)	0.024	0.0984	ND (0.16)	ND (0.19)	ND (0.17)	0.0471	0.0207	ND (0.70)	ND (0.43)	ND (1.9)	ND (0.28)	ND (0.16)
Benzene	mg/kg	5	ND (0.011)	0.448	0.284	0.022	1.7	0.0318	0.0996	ND (0.00022)	0.186	0.511	0.00054	0.0034	3.29	5.36	0.0985	ND (0.00020)	ND (0.00018)	0.174	7.12	5.62	4.34	4.53
2-Butanone (MEK)	mg/kg	44,000	ND (0.11)	ND (0.29)	ND (0.11)	0.0077 J	ND (0.11)	ND (0.095)	ND (0.16)	0.0347	ND (0.11)	ND (0.10)	ND (0.0018)	0.024	ND (0.12)	ND (0.14)	ND (0.13)	0.0066 J	ND (0.0019)	ND (0.52)	ND (0.32)	ND (1.4)	ND (0.21)	ND (0.12)
Carbon disulfide	mg/kg	110,000	ND (0.017)	ND (0.046)	0.0201 J	0.002	ND (0.017)	ND (0.015)	ND (0.025)	0.0019 J	0.0989 J	ND (0.016)	ND (0.00029)	0.00035 J	ND (0.019)	ND (0.022)	ND (0.020)	0.00052 J	0.00044 J	ND (0.081)	ND (0.050)	ND (0.22)	ND (0.033)	ND (0.019)
Chlorobenzene	mg/kg	7,400	ND (0.0083)	ND (0.022)	0.0337 J	ND (0.00014)	ND (0.0079)	ND (0.0071)	ND (0.012)	ND (0.00017)	ND (0.0085)	ND (0.0076)	ND (0.00014)	ND (0.00016)	ND (0.0090)	ND (0.011)	ND (0.0094)	ND (0.00016)	0.00036 J	ND (0.039)	ND (0.024)	ND (0.11)	ND (0.015)	ND (0.0092)
Cyclohexane	mg/kg	-	ND (0.021)	1.31	0.0519 J	0.0096	1.21	0.0944 J	0.686	ND (0.00044)	0.193	1.74	0.032	0.0046	0.321	7.11	1.25	0.00054 J	ND (0.00035)	0.420 J	2.29	24.6	7.37	1.89
1,2-Dichlorobenzene	mg/kg	59,000	ND (0.011)	ND (0.030)	0.0667	ND (0.00018)	ND (0.011)	ND (0.0096)	ND (0.016)	ND (0.00023)	ND (0.012)	ND (0.010)	ND (0.00019)	ND (0.00021)	ND (0.012)	0.124	ND (0.013)	ND (0.00021)	ND (0.00019)	ND (0.053)	ND (0.032)	ND (0.14)	ND (0.021)	ND (0.012)
1,3-Dichlorobenzene	mg/kg	59,000	ND (0.012)	ND (0.031)																				



Table 4-1  
Hess Corporation - Former Port Reading Complex (HC-PR) - 750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Analytical Results at AOC-58 – Chemical Storage

Client Sample ID:		NJ Non-Residential Direct Contact Soil	SRU-SS-4	SRU-SS-4A
Lab Sample ID:			JB99097-5	JB99097-7
Date Sampled:			7/14/2015	7/14/2015
Depth:			1.5-2.0 ft	6.5-7.0 ft
Matrix:			Soil	Soil
GC/MS Volatiles (SW846 8260C)				
Acetone	mg/kg	NA	0.0059 J	0.0085 J
Benzene	mg/kg	5	ND (0.00015)	ND (0.00013)
Bromochloromethane	mg/kg		ND (0.00035)	ND (0.00031)
Bromodichloromethane	mg/kg	3	ND (0.00018)	ND (0.00016)
Bromoform	mg/kg	280	ND (0.00027)	ND (0.00024)
Bromomethane	mg/kg	59	ND (0.00042)	ND (0.00037)
2-Butanone (MEK)	mg/kg	44000	ND (0.0022)	ND (0.0019)
Carbon disulfide	mg/kg	110000	0.00031 J	ND (0.00023)
Carbon tetrachloride	mg/kg	2	ND (0.00026)	ND (0.00023)
Chlorobenzene	mg/kg	7400	ND (0.00018)	ND (0.00016)
Chloroethane	mg/kg	1100	ND (0.00055)	ND (0.00048)
Chloroform	mg/kg	2	ND (0.00017)	ND (0.00015)
Chloromethane	mg/kg	12	ND (0.00030)	ND (0.00026)
Cyclohexane	mg/kg		ND (0.00036)	ND (0.00032)
1,2-Dibromo-3-chloropropane	mg/kg	0.2	ND (0.00062)	ND (0.00055)
Dibromochloromethane	mg/kg	8	ND (0.00023)	ND (0.00021)
1,2-Dibromoethane	mg/kg	0.04	ND (0.00015)	ND (0.00013)
1,2-Dichlorobenzene	mg/kg	59000	ND (0.00014)	ND (0.00012)
1,3-Dichlorobenzene	mg/kg	59000	ND (0.00018)	ND (0.00016)
1,4-Dichlorobenzene	mg/kg	13	ND (0.00026)	ND (0.00023)
Dichlorodifluoromethane	mg/kg	230000	ND (0.00041)	ND (0.00036)
1,1-Dichloroethane	mg/kg	24	ND (0.00016)	ND (0.00014)
1,2-Dichloroethane	mg/kg	3	ND (0.00015)	ND (0.00014)
1,1-Dichloroethene	mg/kg	150	ND (0.00067)	ND (0.00060)
cis-1,2-Dichloroethene	mg/kg	560	ND (0.00089)	ND (0.00079)
trans-1,2-Dichloroethene	mg/kg	720	ND (0.00068)	ND (0.00060)
1,2-Dichloropropane	mg/kg	5	ND (0.00027)	ND (0.00024)
cis-1,3-Dichloropropene	mg/kg	7	ND (0.00013)	ND (0.00012)
trans-1,3-Dichloropropene	mg/kg	7	ND (0.00020)	ND (0.00018)
Ethylbenzene	mg/kg	110000	ND (0.00019)	ND (0.00016)
Freon 113	mg/kg		ND (0.00051)	ND (0.00045)
2-Hexanone	mg/kg	-	ND (0.0015)	ND (0.0014)
Isopropylbenzene	mg/kg	-	ND (0.00012)	ND (0.00011)
Methyl Acetate	mg/kg	NA	ND (0.00098)	ND (0.00087)
Methylcyclohexane	mg/kg		ND (0.00026)	ND (0.00023)
Methyl Tert Butyl Ether	mg/kg	320	ND (0.00017)	ND (0.00015)
4-Methyl-2-pentanone(MIBK)	mg/kg		ND (0.00052)	ND (0.00046)
Methylene chloride	mg/kg	97	ND (0.0011)	ND (0.00099)
Styrene	mg/kg	260	ND (0.00020)	ND (0.00018)
Tert Butyl Alcohol	mg/kg	11000		
1,1,1,2-Tetrachloroethane	mg/kg	3	ND (0.00020)	ND (0.00018)
Tetrachloroethene	mg/kg	5	ND (0.00034)	ND (0.00030)
Toluene	mg/kg	91000	0.00031 J	ND (0.00021)
1,2,3-Trichlorobenzene	mg/kg	-	ND (0.00020)	ND (0.00018)
1,2,4-Trichlorobenzene	mg/kg	820	ND (0.00019)	ND (0.00017)
1,1,1-Trichloroethane	mg/kg	4200	ND (0.00017)	ND (0.00015)
1,1,2-Trichloroethane	mg/kg	6	ND (0.00017)	ND (0.00015)
Trichloroethene	mg/kg	20	ND (0.00017)	ND (0.00015)
Trichlorofluoromethane	mg/kg	340000	ND (0.00028)	ND (0.00025)
Vinyl chloride	mg/kg	2	ND (0.00022)	ND (0.00020)
m,p-Xylene	mg/kg	170000	0.00042 J	ND (0.00035)
o-Xylene	mg/kg	170000	0.00041 J	ND (0.00028)
Xylene (total)	mg/kg	170000	0.00083 J	ND (0.00028)

Table 4-1  
Hess Corporation - Former Port Reading Complex (HC-PR) - 750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Analytical Results at AOC-58 – Chemical Storage

Client Sample ID:		NJ Non-Residential Direct Contact Soil	SRU-SS-4	SRU-SS-4A
Lab Sample ID:			JB99097-5	JB99097-7
Date Sampled:			7/14/2015	7/14/2015
Depth:			1.5-2.0 ft	6.5-7.0 ft
Matrix:			Soil	Soil
<b>GC/MS Volatile TIC</b>				
Total TIC, Volatile	mg/kg	-	0.0058 J	0
Total Alkanes	mg/kg	-	0	0
<b>GC/MS Semi-volatiles (SW846 8270D)</b>				
2-Chlorophenol	mg/kg	2200	ND (0.073)	ND (0.075)
4-Chloro-3-methyl phenol	mg/kg	-	ND (0.18)	ND (0.19)
2,4-Dichlorophenol	mg/kg	2100	ND (0.18)	ND (0.19)
2,4-Dimethylphenol	mg/kg	14000	ND (0.18)	ND (0.19)
2,4-Dinitrophenol	mg/kg	1400	ND (0.18)	ND (0.19)
4,6-Dinitro-o-cresol	mg/kg	68	ND (0.18)	ND (0.19)
2-Methylphenol	mg/kg	3400	ND (0.073)	ND (0.075)
3&4-Methylphenol	mg/kg	-	ND (0.073)	ND (0.075)
2-Nitrophenol	mg/kg	-	ND (0.18)	ND (0.19)
4-Nitrophenol	mg/kg	-	ND (0.37)	ND (0.37)
Pentachlorophenol	mg/kg	10	ND (0.18)	ND (0.19)
Phenol	mg/kg	210000	ND (0.073)	ND (0.075)
2,3,4,6-Tetrachlorophenol	mg/kg	-	ND (0.18)	ND (0.19)
2,4,5-Trichlorophenol	mg/kg	68000	ND (0.18)	ND (0.19)
2,4,6-Trichlorophenol	mg/kg	74	ND (0.18)	ND (0.19)
Acenaphthene	mg/kg	37000	0.0209 J	ND (0.037)
Acenaphthylene	mg/kg	300000	ND (0.037)	ND (0.037)
Acetophenone	mg/kg	5	ND (0.18)	ND (0.19)
Anthracene	mg/kg	30000	0.0388	ND (0.037)
Atrazine	mg/kg	2400	ND (0.073)	ND (0.075)
Benzo(a)anthracene	mg/kg	2	0.196	0.0175 J
Benzo(a)pyrene	mg/kg	0.2	0.143	ND (0.037)
Benzo(b)fluoranthene	mg/kg	2	0.103	ND (0.037)
Benzo(g,h,i)perylene	mg/kg	30000	0.104	ND (0.037)
Benzo(k)fluoranthene	mg/kg	23	0.0227 J	ND (0.037)
4-Bromophenyl phenyl ether	mg/kg	-	ND (0.073)	ND (0.075)
Butyl benzyl phthalate	mg/kg	14000	0.143	ND (0.075)
1,1'-Biphenyl	mg/kg	34000	ND (0.073)	ND (0.075)
Benzaldehyde	mg/kg	68000	ND (0.18)	ND (0.19)
2-Chloronaphthalene	mg/kg	-	ND (0.073)	ND (0.075)
4-Chloroaniline	mg/kg	-	ND (0.18)	ND (0.19)
Carbazole	mg/kg	96	ND (0.073)	ND (0.075)
Caprolactam	mg/kg	340000	ND (0.073)	ND (0.075)
Chrysene	mg/kg	230	0.518	0.0327 J
bis(2-Chloroethoxy)methane	mg/kg	-	ND (0.073)	ND (0.075)
bis(2-Chloroethyl)ether	mg/kg	2	ND (0.073)	ND (0.075)
bis(2-Chloroisopropyl)ether	mg/kg	67	ND (0.073)	ND (0.075)
4-Chlorophenyl phenyl ether	mg/kg	-	ND (0.073)	ND (0.075)
2,4-Dinitrotoluene	mg/kg	3	ND (0.037)	ND (0.037)
2,6-Dinitrotoluene	mg/kg	3	ND (0.037)	ND (0.037)
3,3'-Dichlorobenzidine	mg/kg	4	ND (0.073)	ND (0.075)
1,4-Dioxane	mg/kg	-	ND (0.037)	ND (0.037)
Dibenzo(a,h)anthracene	mg/kg	0.2	0.06	ND (0.037)
Dibenzofuran	mg/kg	-	ND (0.073)	ND (0.075)
Di-n-butyl phthalate	mg/kg	68000	ND (0.073)	ND (0.075)
Di-n-octyl phthalate	mg/kg	27000	ND (0.073)	ND (0.075)
Diethyl phthalate	mg/kg	550000	ND (0.073)	ND (0.075)
Dimethyl phthalate	mg/kg	-	ND (0.073)	ND (0.075)
bis(2-Ethylhexyl)phthalate	mg/kg	140	0.618	0.238
Fluoranthene	mg/kg	24000	0.101	ND (0.037)
Fluorene	mg/kg	24000	ND (0.037)	ND (0.037)
Hexachlorobenzene	mg/kg	1	ND (0.073)	ND (0.075)
Hexachlorobutadiene	mg/kg	25	ND (0.037)	ND (0.037)
Hexachlorocyclopentadiene	mg/kg	110	ND (0.37)	ND (0.37)
Hexachloroethane	mg/kg	140	ND (0.18)	ND (0.19)
Indeno(1,2,3-cd)pyrene	mg/kg	2	0.076	ND (0.037)
Isophorone	mg/kg	2000	ND (0.073)	ND (0.075)
2-Methylnaphthalene	mg/kg	2400	0.0296 J	ND (0.075)
2-Nitroaniline	mg/kg	23000	ND (0.18)	ND (0.19)
3-Nitroaniline	mg/kg	-	ND (0.18)	ND (0.19)
4-Nitroaniline	mg/kg	-	ND (0.18)	ND (0.19)
Naphthalene	mg/kg	17	ND (0.037)	ND (0.037)
Nitrobenzene	mg/kg	340	ND (0.073)	ND (0.075)
N-Nitroso-di-n-propylamine	mg/kg	0.3	ND (0.073)	ND (0.075)
N-Nitrosodiphenylamine	mg/kg	390	ND (0.18)	ND (0.19)
Phenanthrene	mg/kg	300000	0.353	0.0311 J
Pyrene	mg/kg	18000	0.432	0.0381
1,2,4,5-Tetrachlorobenzene	mg/kg	-	ND (0.18)	ND (0.19)
<b>GC/MS Semi-volatile TIC</b>				
Total TIC, Semi-Volatile	mg/kg	-	12.02 J	3.93 J
Total Alkanes	mg/kg	-	-	-
Total Alkanes	mg/kg	-	4.56 J	0
<b>Metals Analysis</b>				
Sulfur	mg/kg	-	2250	231
<b>General Chemistry</b>				
Nitrogen, Ammonia	mg/kg	-	<2.4	<2.4
Solids, Percent	%	-	89.5	85.5
pH	su	-	11.23	8.65

All results in mg/kg unless otherwise noted.

	Exceeds NJDEP Non-Residential Soil Remediation Standard
mg/kg	milligrams per kilogram
J	Estimated Value
NS	Not Sampled
ND	Not Detected
NA	Not Analyzed
( )	Method Detection Limit
B	Compound Found in Blank
**	Health based standard defaults to soil saturation limit
<sup>a</sup> <sup>b</sup>	Result is from 2nd run

Table 4-1

Hess Corporation - Former Port Reading Complex (HC-PR) - 750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Analytical Results at AOC 59 - API Storage Area

Client Sample ID:		NJ Non-Residential Direct Contact Soil	API-SS-10	API-SS-10A
Lab Sample ID:			JB99428-7	JB99428-8
Date Sampled:			7/17/2015	7/17/2015
Sample Depth:			1.0-1.5 ft	26.0-26.5 ft
Matrix:			Soil	Soil
GC/MS Volatiles (SW846 8260C)				
Acetone	mg/kg	NA	0.0326	0.0078 J
Benzene	mg/kg	5	ND (0.00013)	ND (0.00013)
Bromochloromethane	mg/kg	-	ND (0.00029)	ND (0.00030)
Bromodichloromethane	mg/kg	3	ND (0.00015)	ND (0.00015)
Bromoform	mg/kg	280	ND (0.00022)	ND (0.00023)
Bromomethane	mg/kg	59	ND (0.00034)	ND (0.00035)
2-Butanone (MEK)	mg/kg	44000	ND (0.0018)	ND (0.0018)
Carbon disulfide	mg/kg	110000	0.0013 J	0.0011 J
Carbon tetrachloride	mg/kg	2	ND (0.00022)	ND (0.00022)
Chlorobenzene	mg/kg	7400	ND (0.00015)	ND (0.00015)
Chloroethane	mg/kg	1100	ND (0.00046)	ND (0.00047)
Chloroform	mg/kg	2	ND (0.00014)	ND (0.00014)
Chloromethane	mg/kg	12	ND (0.00025)	ND (0.00025)
Cyclohexane	mg/kg	-	ND (0.00030)	ND (0.00031)
1,2-Dibromo-3-chloropropane	mg/kg	0.2	ND (0.00051)	ND (0.00053)
Dibromochloromethane	mg/kg	8	ND (0.00019)	ND (0.00020)
1,2-Dibromoethane	mg/kg	0.04	ND (0.00012)	ND (0.00013)
1,2-Dichlorobenzene	mg/kg	59000	ND (0.00012)	0.00057 J
1,3-Dichlorobenzene	mg/kg	59000	ND (0.00015)	ND (0.00015)
1,4-Dichlorobenzene	mg/kg	13	ND (0.00021)	ND (0.00022)
Dichlorodifluoromethane	mg/kg	230000	ND (0.00034)	ND (0.00035)
1,1-Dichloroethane	mg/kg	24	ND (0.00013)	ND (0.00014)
1,2-Dichloroethane	mg/kg	3	ND (0.00013)	ND (0.00013)
1,1-Dichloroethene	mg/kg	150	ND (0.00056)	ND (0.00057)
cis-1,2-Dichloroethene	mg/kg	560	ND (0.00074)	ND (0.00075)
trans-1,2-Dichloroethene	mg/kg	720	ND (0.00056)	ND (0.00058)
1,2-Dichloropropane	mg/kg	5	ND (0.00023)	0.0014 J
cis-1,3-Dichloropropene	mg/kg	7	ND (0.00011)	ND (0.00011)
trans-1,3-Dichloropropene	mg/kg	7	ND (0.00017)	ND (0.00017)
Ethylbenzene	mg/kg	110000	ND (0.00015)	ND (0.00016)
Freon 113	mg/kg	-	ND (0.00042)	ND (0.00043)
2-Hexanone	mg/kg	-	ND (0.0013)	ND (0.0013)
Isopropylbenzene	mg/kg	-	ND (0.00010)	ND (0.00010)
Methyl Acetate	mg/kg	NA	ND (0.00081)	ND (0.00083)
Methylcyclohexane	mg/kg	-	ND (0.00021)	ND (0.00022)
Methyl Tert Butyl Ether	mg/kg	320	ND (0.00014)	0.00050 J
4-Methyl-2-pentanone(MIBK)	mg/kg	-	ND (0.00043)	ND (0.00044)
Methylene chloride	mg/kg	97	ND (0.00093)	ND (0.00095)
Styrene	mg/kg	260	ND (0.00017)	ND (0.00017)
Tert Butyl Alcohol	mg/kg	11000	ND (0.0025)	0.0130 J
1,1,2,2-Tetrachloroethane	mg/kg	3	ND (0.00017)	ND (0.00017)
Tetrachloroethene	mg/kg	5	ND (0.00028)	ND (0.00029)
Toluene	mg/kg	91000	0.0019	0.0055
1,2,3-Trichlorobenzene	mg/kg	-	ND (0.00017)	ND (0.00017)
1,2,4-Trichlorobenzene	mg/kg	820	ND (0.00016)	ND (0.00016)
1,1,1-Trichloroethane	mg/kg	4200	ND (0.00014)	ND (0.00014)
1,1,2-Trichloroethane	mg/kg	6	ND (0.00014)	ND (0.00014)
Trichloroethene	mg/kg	20	ND (0.00014)	0.00058 J
Trichlorofluoromethane	mg/kg	340000	ND (0.00024)	ND (0.00024)
Vinyl chloride	mg/kg	2	ND (0.00019)	ND (0.00019)
m,p-Xylene	mg/kg	170000	ND (0.00033)	ND (0.00034)
o-Xylene	mg/kg	170000	ND (0.00026)	ND (0.00027)
Xylene (total)	mg/kg	170000	ND (0.00026)	ND (0.00027)

Table 4-1

Hess Corporation - Former Port Reading Complex (HC-PR) - 750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Analytical Results at AOC 59 - API Storage Area

Client Sample ID:		NJ Non-Residential Direct Contact Soil	API-SS-10	API-SS-10A
Lab Sample ID:			JB99428-7	JB99428-8
Date Sampled:			7/17/2015	7/17/2015
Sample Depth:			1.0-1.5 ft	26.0-26.5 ft
Matrix:			Soil	Soil
GC/MS Volatile TIC				
Total TIC, Volatile	mg/kg	-	0.593 J	0
Total Alkanes	mg/kg	-	0.000739 J	0
GC/MS Semi-volatiles (SW846 8270D)				
2-Chlorophenol	mg/kg	2200	ND (0.069)	ND (0.073)
4-Chloro-3-methyl phenol	mg/kg	-	ND (0.17)	ND (0.18)
2,4-Dichlorophenol	mg/kg	2100	ND (0.17)	ND (0.18)
2,4-Dimethylphenol	mg/kg	14000	ND (0.17)	ND (0.18)
2,4-Dinitrophenol	mg/kg	1400	ND (0.17)	ND (0.18)
4,6-Dinitro-o-cresol	mg/kg	68	ND (0.17)	ND (0.18)
2-Methylphenol	mg/kg	3400	ND (0.069)	ND (0.073)
3&4-Methylphenol	mg/kg	-	ND (0.069)	ND (0.073)
2-Nitrophenol	mg/kg	-	ND (0.17)	ND (0.18)
4-Nitrophenol	mg/kg	-	ND (0.34)	ND (0.36)
Pentachlorophenol	mg/kg	10	ND (0.17)	ND (0.18)
Phenol	mg/kg	210000	ND (0.069)	ND (0.073)
2,3,4,6-Tetrachlorophenol	mg/kg	-	ND (0.17)	ND (0.18)
2,4,5-Trichlorophenol	mg/kg	68000	ND (0.17)	ND (0.18)
2,4,6-Trichlorophenol	mg/kg	74	ND (0.17)	ND (0.18)
Acenaphthene	mg/kg	37000	0.0468	ND (0.036)
Acenaphthylene	mg/kg	300000	ND (0.034)	ND (0.036)
Acetophenone	mg/kg	5	ND (0.17)	ND (0.18)
Anthracene	mg/kg	30000	ND (0.034)	ND (0.036)
Atrazine	mg/kg	2400	ND (0.069)	ND (0.073)
Benzo(a)anthracene	mg/kg	2	0.0171 J	ND (0.036)
Benzo(a)pyrene	mg/kg	0.2	ND (0.034)	ND (0.036)
Benzo(b)fluoranthene	mg/kg	2	ND (0.034)	ND (0.036)
Benzo(g,h,i)perylene	mg/kg	30000	ND (0.034)	ND (0.036)
Benzo(k)fluoranthene	mg/kg	23	ND (0.034)	ND (0.036)
4-Bromophenyl phenyl ether	mg/kg	-	ND (0.069)	ND (0.073)
Butyl benzyl phthalate	mg/kg	14000	ND (0.069)	ND (0.073)
1,1'-Biphenyl	mg/kg	34000	ND (0.069)	ND (0.073)
Benzaldehyde	mg/kg	68000	ND (0.17)	ND (0.18)
2-Chloronaphthalene	mg/kg	-	ND (0.069)	ND (0.073)
4-Chloroaniline	mg/kg	-	ND (0.17)	ND (0.18)
Carbazole	mg/kg	96	ND (0.069)	ND (0.073)
Caprolactam	mg/kg	340000	ND (0.069)	ND (0.073)
Chrysene	mg/kg	230	0.0627	ND (0.036)
bis(2-Chloroethoxy)methane	mg/kg	-	ND (0.069)	ND (0.073)
bis(2-Chloroethyl)ether	mg/kg	2	ND (0.069)	ND (0.073)
bis(2-Chloroisopropyl)ether	mg/kg	67	ND (0.069)	ND (0.073)
4-Chlorophenyl phenyl ether	mg/kg	-	ND (0.069)	ND (0.073)
2,4-Dinitrotoluene	mg/kg	3	ND (0.034)	ND (0.036)
2,6-Dinitrotoluene	mg/kg	3	ND (0.034)	ND (0.036)
3,3'-Dichlorobenzidine	mg/kg	4	ND (0.069)	ND (0.073)
1,4-Dioxane	mg/kg	-	ND (0.034)	ND (0.036)
Dibenzo(a,h)anthracene	mg/kg	0.2	ND (0.034)	ND (0.036)
Dibenzofuran	mg/kg	-	ND (0.069)	ND (0.073)
Di-n-butyl phthalate	mg/kg	68000	ND (0.069)	ND (0.073)
Di-n-octyl phthalate	mg/kg	27000	ND (0.069)	ND (0.073)
Diethyl phthalate	mg/kg	550000	ND (0.069)	ND (0.073)
Dimethyl phthalate	mg/kg	-	ND (0.069)	ND (0.073)
bis(2-Ethylhexyl)phthalate	mg/kg	140	0.0591 J	ND (0.073)
Fluoranthene	mg/kg	24000	ND (0.034)	ND (0.036)
Fluorene	mg/kg	24000	ND (0.034)	ND (0.036)
Hexachlorobenzene	mg/kg	1	ND (0.069)	ND (0.073)
Hexachlorobutadiene	mg/kg	25	ND (0.034)	ND (0.036)
Hexachlorocyclopentadiene	mg/kg	110	ND (0.34)	ND (0.36)
Hexachloroethane	mg/kg	140	ND (0.17)	ND (0.18)
Indeno(1,2,3-cd)pyrene	mg/kg	2	ND (0.034)	ND (0.036)
Isophorone	mg/kg	2000	ND (0.069)	ND (0.073)
2-Methylnaphthalene	mg/kg	2400	ND (0.069)	ND (0.073)
2-Nitroaniline	mg/kg	23000	ND (0.17)	ND (0.18)
3-Nitroaniline	mg/kg	-	ND (0.17)	ND (0.18)
4-Nitroaniline	mg/kg	-	ND (0.17)	ND (0.18)
Naphthalene	mg/kg	17	ND (0.034)	ND (0.036)
Nitrobenzene	mg/kg	340	ND (0.069)	ND (0.073)
N-Nitroso-di-n-propylamine	mg/kg	0.3	ND (0.069)	ND (0.073)
N-Nitrosodiphenylamine	mg/kg	390	ND (0.17)	ND (0.18)
Phenanthrene	mg/kg	300000	ND (0.034)	ND (0.036)
Pyrene	mg/kg	18000	0.0669	ND (0.036)
1,2,4,5-Tetrachlorobenzene	mg/kg	-	ND (0.17)	ND (0.18)



Table 4-1  
Hess Corporation - Former Port Reading Complex (HC-PR) - 750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Analytical Results at AOC 59 - API Storage Area

Client Sample ID:		NJ Non-Residential Direct Contact Soil	API-SS-10	API-SS-10A
Lab Sample ID:			JB99428-7	JB99428-8
Date Sampled:			7/17/2015	7/17/2015
Sample Depth:			1.0-1.5 ft	26.0-26.5 ft
Matrix:			Soil	Soil
<b>GC/MS Semi-volatile TIC</b>				
Total TIC, Semi-Volatile	mg/kg	-	12.25 J	0.3 J
Total Alkanes	mg/kg	-	7.89 J	0
<b>Metals Analysis</b>				
Aluminum	mg/kg	NA	5990	1140
Antimony	mg/kg	450	<2.1	<2.3
Arsenic	mg/kg	19	<2.1	<2.3
Barium	mg/kg	59000	<21	<23
Beryllium	mg/kg	140	<0.21	0.27
Cadmium	mg/kg	78	<0.53	<0.57
Calcium	mg/kg	-	3140	<570
Chromium	mg/kg	-	14.8	7.1
Cobalt	mg/kg	590	<5.3	<5.7
Copper	mg/kg	45000	25.4	<2.9
Iron	mg/kg	-	10600	1570
Lead	mg/kg	800	6.7	<2.3
Magnesium	mg/kg	-	2710	<570
Manganese	mg/kg	5900	90.7	6
Mercury	mg/kg	65	<0.034	<0.037
Nickel	mg/kg	23000	10.3	<4.6
Potassium	mg/kg	-	<1100	<1100
Selenium	mg/kg	5700	<2.1	<2.3
Silver	mg/kg	5700	<0.53	<0.57
Sodium	mg/kg	-	<1100	<1100
Thallium	mg/kg	79	<1.1	<1.1
Vanadium	mg/kg	1100	38.9	5.9
Zinc	mg/kg	110000	23.5	<5.7
<b>General Chemistry</b>				
Nitrogen, Ammonia	mg/kg	-	<2.5	<2.7
Solids, Percent	%	-	92.7	87.5
Sulfide, Neutral Extraction	mg/kg	-	<4.2	<4.5
pH	su	-	9.17	6.84
All results in mg/kg unless otherwise noted.				
		Exceeds NJDEP Non-Residential Soil Remediation Standard		
mg/kg		milligrams per kilogram		
J		Estimated Value		
NS		Not Sampled		
ND		Not Detected		
NA		Not Analyzed		
( )		Method Detection Limit		
B		Compound Found in Blank		
**		Health based standard defaults to soil saturation limit		
a b		Result is from 2nd run		

Table 4-1  
Hess Corporation - Former Port Reading Complex (HC-PR) - 750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Analytical Results at AOC 60 - Avenue B Tankfield

Client Sample ID:		NJ Non-Residential Direct Contact Soil	ABTF-SS-1	ABTF-SS-2	ABTF-SS-3	ABTF-SS-3	ABTF-SS-3	ABTF-SS-3	ABTF-SS-4	ABTF-SS-5	ABTF-SS-6
Lab Sample ID:			JB99248-2	JB99248-3	JB99248-4	JB99248-4R	JB99248-4RT	JB99248-5	JB99248-6	JB99248-7	
Date Sampled:			7/15/2015	7/15/2015	7/15/2015	7/15/2015	7/15/2015	7/15/2015	7/15/2015	7/15/2015	
Matrix:			Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	
Depth:			3.0-3.5 ft	1.5-2.0 ft	2.0-2.5 ft	2.0-2.5 ft	2.0-2.5 ft	4.5-5.0 ft	4.5-5.0 ft	3.5-4.0 ft	

**GC/MS Volatiles (SW846 8260C)**

Acetone	mg/kg	NA	0.0122	0.0044 J	ND (0.12)	-	-	ND (0.12)	ND (0.11)	0.0039 J
Benzene	mg/kg	5	0.00081	0.00083	ND (0.0069)	-	-	ND (0.0070)	ND (0.0067)	ND (0.00015)
Bromochloromethane	mg/kg	-	ND (0.00031)	ND (0.00031)	ND (0.016)	-	-	ND (0.016)	ND (0.015)	ND (0.00035)
Bromodichloromethane	mg/kg	3	ND (0.00016)	ND (0.00016)	ND (0.0081)	-	-	ND (0.0082)	ND (0.0078)	ND (0.00018)
Bromoform	mg/kg	280	ND (0.00024)	ND (0.00024)	ND (0.012)	-	-	ND (0.012)	ND (0.012)	ND (0.00027)
Bromomethane	mg/kg	59	ND (0.00036)	ND (0.00037)	ND (0.019)	-	-	ND (0.019)	ND (0.018)	ND (0.00041)
2-Butanone (MEK)	mg/kg	44000	ND (0.0019)	ND (0.0019)	ND (0.099)	-	-	ND (0.10)	ND (0.096)	ND (0.0022)
Carbon disulfide	mg/kg	110000	ND (0.00023)	ND (0.00023)	ND (0.012)	-	-	ND (0.012)	ND (0.011)	ND (0.00026)
Carbon tetrachloride	mg/kg	2	ND (0.00023)	ND (0.00023)	ND (0.012)	-	-	ND (0.012)	ND (0.012)	ND (0.00026)
Chlorobenzene	mg/kg	7400	ND (0.00015)	ND (0.00016)	ND (0.0081)	-	-	ND (0.0082)	ND (0.0078)	ND (0.00018)
Chloroethane	mg/kg	1100	ND (0.00048)	ND (0.00049)	ND (0.025)	-	-	ND (0.025)	ND (0.024)	ND (0.00054)
2-Chloroethyl vinyl ether	mg/kg	-	ND (0.0050)	ND (0.0051)	ND (0.26)	-	-	ND (0.26)	ND (0.25)	ND (0.0056)
Chloroform	mg/kg	2	ND (0.00015)	ND (0.00015)	ND (0.0077)	-	-	ND (0.0079)	ND (0.0075)	ND (0.00017)
Chloromethane	mg/kg	12	ND (0.00026)	ND (0.00026)	ND (0.014)	-	-	ND (0.014)	ND (0.013)	ND (0.00030)
Cyclohexane	mg/kg	-	0.0028	ND (0.00032)	0.0190 J	-	-	ND (0.017)	ND (0.016)	ND (0.00036)
1,2-Dibromo-3-chloropropane	mg/kg	0.2	ND (0.00054)	ND (0.00055)	ND (0.028)	-	-	ND (0.029)	ND (0.027)	ND (0.00061)
Dibromochloromethane	mg/kg	8	ND (0.00020)	ND (0.00021)	ND (0.011)	-	-	ND (0.011)	ND (0.010)	ND (0.00023)
1,2-Dibromoethane	mg/kg	0.04	ND (0.00013)	ND (0.00013)	ND (0.0068)	-	-	ND (0.0069)	ND (0.0066)	ND (0.00015)
1,2-Dichlorobenzene	mg/kg	59000	ND (0.00012)	ND (0.00012)	ND (0.0063)	-	-	ND (0.0064)	ND (0.0061)	ND (0.00014)
1,3-Dichlorobenzene	mg/kg	59000	ND (0.00016)	ND (0.00016)	ND (0.0082)	-	-	ND (0.0083)	ND (0.0079)	ND (0.00018)
1,4-Dichlorobenzene	mg/kg	13	ND (0.00022)	ND (0.00023)	ND (0.012)	-	-	ND (0.012)	ND (0.011)	ND (0.00025)
Dichlorodifluoromethane	mg/kg	230000	ND (0.00036)	ND (0.00036)	ND (0.019)	-	-	ND (0.019)	ND (0.018)	ND (0.00041)
1,1-Dichloroethane	mg/kg	24	ND (0.00014)	ND (0.00014)	ND (0.0073)	-	-	ND (0.0075)	ND (0.0071)	ND (0.00016)
1,2-Dichloroethane	mg/kg	3	ND (0.00013)	ND (0.00014)	ND (0.0070)	-	-	ND (0.0071)	ND (0.0067)	ND (0.00015)
1,1-Dichloroethene	mg/kg	150	ND (0.00059)	ND (0.00060)	ND (0.031)	-	-	ND (0.031)	ND (0.030)	ND (0.00067)
cis-1,2-Dichloroethene	mg/kg	560	ND (0.00078)	ND (0.00079)	ND (0.040)	-	-	ND (0.041)	ND (0.039)	ND (0.00088)
trans-1,2-Dichloroethene	mg/kg	720	ND (0.00059)	ND (0.00060)	ND (0.031)	-	-	ND (0.031)	ND (0.030)	ND (0.00067)
1,2-Dichloropropane	mg/kg	5	ND (0.00024)	ND (0.00024)	ND (0.012)	-	-	ND (0.013)	ND (0.012)	ND (0.00027)
cis-1,3-Dichloropropene	mg/kg	7	ND (0.00012)	ND (0.00012)	ND (0.0061)	-	-	ND (0.0062)	ND (0.0059)	ND (0.00013)
trans-1,3-Dichloropropene	mg/kg	7	ND (0.00018)	ND (0.00018)	ND (0.0092)	-	-	ND (0.0094)	ND (0.0089)	ND (0.00020)
Ethylbenzene	mg/kg	110000	0.0764	ND (0.00016)	0.0246 J	-	-	ND (0.0086)	ND (0.0082)	ND (0.00018)
Freon 113	mg/kg	-	ND (0.00045)	ND (0.00045)	ND (0.023)	-	-	ND (0.024)	ND (0.022)	ND (0.00051)
2-Hexanone	mg/kg	-	ND (0.0013)	ND (0.0014)	ND (0.070)	-	-	ND (0.071)	ND (0.067)	ND (0.0015)
Isopropylbenzene	mg/kg	-	0.0539	ND (0.00011)	0.834	-	-	ND (0.0056)	ND (0.0053)	ND (0.00012)
Methyl Acetate	mg/kg	NA	ND (0.00086)	ND (0.00087)	ND (0.045)	-	-	ND (0.045)	ND (0.043)	ND (0.00097)
Methylcyclohexane	mg/kg	-	0.0366	ND (0.00023)	0.212	-	-	ND (0.012)	ND (0.011)	ND (0.00026)
Methyl Tert Butyl Ether	mg/kg	320	ND (0.00015)	ND (0.00015)	ND (0.0079)	-	-	ND (0.0081)	ND (0.0077)	ND (0.00017)
4-Methyl-2-pentanone(MIBK)	mg/kg	-	ND (0.00046)	ND (0.00046)	ND (0.024)	-	-	ND (0.024)	ND (0.023)	ND (0.00052)
Methylene chloride	mg/kg	97	ND (0.00098)	ND (0.00099)	ND (0.051)	-	-	ND (0.052)	ND (0.049)	ND (0.0011)
Styrene	mg/kg	260	ND (0.00018)	ND (0.00018)	ND (0.0092)	-	-	ND (0.0094)	ND (0.0089)	ND (0.00020)
Tert Butyl Alcohol	mg/kg	11000	ND (0.0027)	ND (0.0027)	ND (0.14)	-	-	ND (0.14)	ND (0.13)	ND (0.0030)
1,1,2,2-Tetrachloroethane	mg/kg	3	ND (0.00017)	ND (0.00018)	ND (0.0091)	-	-	ND (0.0093)	ND (0.0088)	ND (0.00020)
Tetrachloroethene	mg/kg	5	ND (0.00030)	ND (0.00030)	ND (0.016)	-	-	ND (0.016)	ND (0.015)	ND (0.00034)
Toluene	mg/kg	91000	0.0039	0.0093	ND (0.011)	-	-	ND (0.011)	ND (0.010)	0.0074
1,2,3-Trichlorobenzene	mg/kg	-	ND (0.00018)	ND (0.00018)	ND (0.0091)	-	-	ND (0.0093)	ND (0.0088)	ND (0.00020)
1,2,4-Trichlorobenzene	mg/kg	820	ND (0.00017)	ND (0.00017)	ND (0.0088)	-	-	ND (0.0089)	ND (0.0085)	ND (0.00019)
1,1,1-Trichloroethane	mg/kg	4200	ND (0.00015)	ND (0.00015)	ND (0.0077)	-	-	ND (0.0079)	ND (0.0075)	ND (0.00017)
1,1,2-Trichloroethane	mg/kg	6	ND (0.00015)	ND (0.00015)	ND (0.0076)	-	-	ND (0.0078)	ND (0.0074)	ND (0.00017)
Trichloroethene	mg/kg	20	ND (0.00015)	ND (0.00015)	ND (0.0076)	-	-	ND (0.0078)	ND (0.0074)	ND (0.00017)
Trichlorofluoromethane	mg/kg	340000	ND (0.00025)	ND (0.00025)	ND (0.013)	-	-	ND (0.013)	ND (0.012)	ND (0.00028)
Vinyl chloride	mg/kg	2	ND (0.00020)	ND (0.00020)	ND (0.010)	-	-	ND (0.010)	ND (0.0099)	ND (0.00022)
m,p-Xylene	mg/kg	170000	0.024	ND (0.00036)	0.0628	-	-	ND (0.019)	ND (0.018)	ND (0.00040)
o-Xylene	mg/kg	170000	0.0059	ND (0.00028)	0.0709	-	-	ND (0.014)	ND (0.014)	ND (0.00031)
Xylene (total)	mg/kg	170000	0.0299	ND (0.00028)	0.134	-	-	ND (0.014)	ND (0.014)	ND (0.00031)

**GC/MS Volatile TIC**

Total TIC, Volatile	mg/kg	-	2.75 J	0	108.5 J	-	-	67.2 J	1.8 J	0
Total Alkanes	mg/kg	-	0.57 J	0	13 J	-	-	14.9 J	88.4 J	0

Table 4-1

Hess Corporation - Former Port Reading Complex (HC-PR) - 750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Analytical Results at AOC 60 - Avenue B Tankfield

Client Sample ID:		NJ Non-Residential Direct Contact Soil	ABTF-SS-1	ABTF-SS-2	ABTF-SS-3	ABTF-SS-3	ABTF-SS-3	ABTF-SS-4	ABTF-SS-5	ABTF-SS-6
Lab Sample ID:			JB99248-2	JB99248-3	JB99248-4	JB99248-4R	JB99248-4RT	JB99248-5	JB99248-6	JB99248-7
Date Sampled:			7/15/2015	7/15/2015	7/15/2015	7/15/2015	7/15/2015	7/15/2015	7/15/2015	7/15/2015
Matrix:			Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Depth:			3.0-3.5 ft	1.5-2.0 ft	2.0-2.5 ft	2.0-2.5 ft	2.0-2.5 ft	4.5-5.0 ft	4.5-5.0 ft	3.5-4.0 ft
GC Semi-volatiles (NJDEP EPH)										

EPH (C9-C28)	mg/kg	-	-	-	-	1980	-	-	-	-
EPH (>C28-C40)	mg/kg	-	-	-	-	311	-	-	-	-
Total EPH (C9-C40)	mg/kg	-	-	-	-	2300	-	-	-	-
C10-C12 Aromatics	mg/kg	-	-	-	-	-	45.5	-	-	-
C12-C16 Aromatics	mg/kg	-	-	-	-	-	154	-	-	-
C16-C21 Aromatics	mg/kg	-	-	-	-	-	250	-	-	-
C21-C36 Aromatics	mg/kg	-	-	-	-	-	124	-	-	-
Total Aromatics	mg/kg	-	-	-	-	-	573	-	-	-
C9-C12 Aliphatics	mg/kg	-	-	-	-	-	267	-	-	-
C12-C16 Aliphatics	mg/kg	-	-	-	-	-	588	-	-	-
C16-C21 Aliphatics	mg/kg	-	-	-	-	-	395	-	-	-
C21-C40 Aliphatics	mg/kg	-	-	-	-	-	333	-	-	-
Total Aliphatics	mg/kg	-	-	-	-	-	1580	-	-	-
Total EPH	mg/kg	-	-	-	-	-	2160	-	-	-

## Metals Analysis

Lead	mg/kg	800	7.8	10.9	8.5	-	-	7.2	8	12.8
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## General Chemistry

Solids, Percent	%	-	84.9	83.9	88.6	-	-	89.8	87.8	80.5
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All results in mg/kg unless otherwise noted.

mg/kg	milligrams per kilogram
J	Estimated Value
NS	Not Sampled
ND	Not Detected
NA	Not Analyzed
( )	Method Detection Limit
B	Compound Found in Blank
**	Health based standard defaults to soil saturation limit
<sup>b</sup>	Result is from 2nd run
<sup>a</sup>	Result is from 2nd run
	Exceeds NJDEP Non-Residential Soil Remediation Standard

Table 4-1  
FHess Corporation - Former Port Reading Complex (HC-PR)  
750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Analytical Results at AOC-62 – Inactive Railroad Spur (Between Canning Plant and QC Lab)

Client Sample ID:		NJ Non-Residential Direct Contact Soil	CPRR-SS-1	CPRR-SS-1	CPRR-SS-2	CPRR-SS-2	CPRR-SS-3	CPRR-SS-4	CPRR-SS-5
Lab Sample ID:			JB98804-10	JB98804-10T	JB98804-11	JB98804-11R	JB98904-11	JB98904-10	JB98904-9
Date Sampled:			7/8/2015	7/8/2015	7/8/2015	7/8/2015	7/9/2015	7/9/2015	7/9/2015
Matrix:			Soil	Soil	Soil	Soil	Soil	Soil	Soil
Depth:			0.5-1.0 ft	0.5-1.0 ft	0.5-1.0 ft	0.5-1.0 ft	0.5-1.0 ft	0.5-1.0 ft	0.5-1.0 ft
GC/MS Volatiles (SW846 8260C)									
Acetone	mg/kg	NA	-	ND (0.0020)	-	0.0077 J	-	-	-
Benzene	mg/kg	5	-	ND (0.00012)	-	ND (0.00015)	-	-	-
Bromochloromethane	mg/kg	-	-	ND (0.00027)	-	ND (0.00035)	-	-	-
Bromodichloromethane	mg/kg	3	-	ND (0.00014)	-	ND (0.00018)	-	-	-
Bromoform	mg/kg	280	-	ND (0.00021)	-	ND (0.00027)	-	-	-
Bromomethane	mg/kg	59	-	ND (0.00032)	-	ND (0.00042)	-	-	-
2-Butanone (MEK)	mg/kg	44000	-	ND (0.0017)	-	ND (0.0022)	-	-	-
Carbon disulfide	mg/kg	110000	-	ND (0.00020)	-	ND (0.00026)	-	-	-
Carbon tetrachloride	mg/kg	2	-	ND (0.00020)	-	ND (0.00026)	-	-	-
Chlorobenzene	mg/kg	7400	-	ND (0.00014)	-	ND (0.00018)	-	-	-
Chloroethane	mg/kg	1100	-	ND (0.00043)	-	ND (0.00055)	-	-	-
2-Chloroethyl vinyl ether	mg/kg	-	-	-	-	-	-	-	-
Chloroform	mg/kg	2	-	ND (0.00013)	-	ND (0.00017)	-	-	-
Chloromethane	mg/kg	12	-	ND (0.00023)	-	ND (0.00030)	-	-	-
Cyclohexane	mg/kg	-	-	ND (0.00028)	-	ND (0.00036)	-	-	-
1,2-Dibromo-3-chloropropane	mg/kg	0.2	-	ND (0.00048)	-	ND (0.00062)	-	-	-
Dibromochloromethane	mg/kg	8	-	ND (0.00018)	-	ND (0.00023)	-	-	-
1,2-Dibromoethane	mg/kg	0.04	-	ND (0.00012)	-	ND (0.00015)	-	-	-
1,2-Dichlorobenzene	mg/kg	59000	-	ND (0.00011)	-	ND (0.00014)	-	-	-
1,3-Dichlorobenzene	mg/kg	59000	-	ND (0.00014)	-	ND (0.00018)	-	-	-
1,4-Dichlorobenzene	mg/kg	13	-	ND (0.00020)	-	ND (0.00026)	-	-	-
Dichlorodifluoromethane	mg/kg	230000	-	ND (0.00032)	-	ND (0.00041)	-	-	-
1,1-Dichloroethane	mg/kg	24	-	ND (0.00012)	-	ND (0.00016)	-	-	-
1,2-Dichloroethane	mg/kg	3	-	ND (0.00012)	-	ND (0.00015)	-	-	-
1,1-Dichloroethene	mg/kg	150	-	ND (0.00052)	-	ND (0.00068)	-	-	-
cis-1,2-Dichloroethene	mg/kg	560	-	ND (0.00069)	-	ND (0.00089)	-	-	-
trans-1,2-Dichloroethene	mg/kg	720	-	ND (0.00053)	-	ND (0.00068)	-	-	-
1,2-Dichloropropane	mg/kg	5	-	ND (0.00021)	-	ND (0.00027)	-	-	-
cis-1,3-Dichloropropene	mg/kg	7	-	ND (0.00010)	-	ND (0.00014)	-	-	-
trans-1,3-Dichloropropene	mg/kg	7	-	ND (0.00016)	-	ND (0.00020)	-	-	-
Ethylbenzene	mg/kg	110000	-	0.00015 J	-	ND (0.00019)	-	-	-
Freon 113	mg/kg	-	-	ND (0.00040)	-	ND (0.00051)	-	-	-
2-Hexanone	mg/kg	-	-	ND (0.0012)	-	ND (0.0015)	-	-	-
Isopropylbenzene	mg/kg	-	-	ND (0.000094)	-	ND (0.00012)	-	-	-
Methyl Acetate	mg/kg	NA	-	ND (0.00076)	-	ND (0.00099)	-	-	-
Methylcyclohexane	mg/kg	-	-	ND (0.00020)	-	ND (0.00026)	-	-	-
Methyl Tert Butyl Ether	mg/kg	320	-	ND (0.00014)	-	ND (0.00018)	-	-	-
4-Methyl-2-pentanone(MIBK)	mg/kg	-	-	ND (0.00041)	-	ND (0.00053)	-	-	-
Methylene chloride	mg/kg	97	-	ND (0.00087)	-	0.0012 J	-	-	-
Styrene	mg/kg	260	-	ND (0.00016)	-	ND (0.00020)	-	-	-
Tert Butyl Alcohol	mg/kg	11000	-	-	-	ND (0.00031)	-	-	-
1,1,2,2-Tetrachloroethane	mg/kg	3	-	ND (0.00016)	-	ND (0.00020)	-	-	-
Tetrachloroethene	mg/kg	5	-	ND (0.00027)	-	ND (0.00034)	-	-	-
Toluene	mg/kg	91000	-	ND (0.00018)	-	0.00046 J	-	-	-
1,2,3-Trichlorobenzene	mg/kg	-	-	ND (0.00016)	-	ND (0.00020)	-	-	-
1,2,4-Trichlorobenzene	mg/kg	820	-	ND (0.00015)	-	ND (0.00019)	-	-	-
1,1,1-Trichloroethane	mg/kg	4200	-	ND (0.00013)	-	ND (0.00017)	-	-	-
1,1,2-Trichloroethane	mg/kg	6	-	ND (0.00013)	-	ND (0.00017)	-	-	-
Trichloroethene	mg/kg	20	-	ND (0.00013)	-	ND (0.00017)	-	-	-
Trichlorofluoromethane	mg/kg	340000	-	ND (0.00022)	-	ND (0.00029)	-	-	-
Vinyl chloride	mg/kg	2	-	ND (0.00017)	-	ND (0.00023)	-	-	-
m,p-Xylene	mg/kg	170000	-	0.00037 J	-	ND (0.00040)	-	-	-
o-Xylene	mg/kg	170000	-	ND (0.00024)	-	ND (0.00031)	-	-	-
Xylene (total)	mg/kg	170000	-	0.00037 J	-	ND (0.00031)	-	-	-
GC/MS Volatiles (SW846 8260C)									
Total TIC, Volatile	mg/kg	-	-	0	-	0	-	-	-
Total Alkanes	mg/kg	-	-	0	-	0	-	-	-



Table 4-1  
FHSS Corporation - Former Port Reading Complex (HC-PR)  
750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Analytical Results at AOC-62 – Inactive Railroad Spur (Between Canning Plant and QC Lab)

Client Sample ID:		NJ Non-Residential Direct Contact Soil	CPRR-SS-1	CPRR-SS-1	CPRR-SS-2	CPRR-SS-2	CPRR-SS-3	CPRR-SS-4	CPRR-SS-5
Lab Sample ID:			JB98804-10	JB98804-10T	JB98804-11	JB98804-11R	JB98904-11	JB98904-10	JB98904-9
Date Sampled:			7/8/2015	7/8/2015	7/8/2015	7/8/2015	7/9/2015	7/9/2015	7/9/2015
Matrix:			Soil	Soil	Soil	Soil	Soil	Soil	Soil
Depth:			0.5-1.0 ft	0.5-1.0 ft	0.5-1.0 ft	0.5-1.0 ft	0.5-1.0 ft	0.5-1.0 ft	0.5-1.0 ft
GC/MS Semi-volatiles (SW846 8270D)									
2-Chlorophenol	mg/kg	-	-	ND (0.071)	-	ND (0.069)	-	-	-
4-Chloro-3-methyl phenol	mg/kg	-	-	ND (0.18)	-	ND (0.17)	-	-	-
2,4-Dichlorophenol	mg/kg	2100	-	ND (0.18)	-	ND (0.17)	-	-	-
2,4-Dimethylphenol	mg/kg	14000	-	ND (0.18)	-	ND (0.17)	-	-	-
2,4-Dinitrophenol	mg/kg	1400	-	ND (0.18)	-	ND (0.17)	-	-	-
4,6-Dinitro-o-cresol	mg/kg	68	-	ND (0.18)	-	ND (0.17)	-	-	-
2-Methylphenol	mg/kg	3400	-	ND (0.071)	-	ND (0.069)	-	-	-
3,4-Methylphenol	mg/kg	-	-	ND (0.071)	-	ND (0.069)	-	-	-
2-Nitrophenol	mg/kg	-	-	ND (0.18)	-	ND (0.17)	-	-	-
4-Nitrophenol	mg/kg	-	-	ND (0.35)	-	ND (0.34)	-	-	-
Pentachlorophenol	mg/kg	10	-	ND (0.18)	-	ND (0.17)	-	-	-
Phenol	mg/kg	210000	-	ND (0.071)	-	ND (0.069)	-	-	-
2,3,4,6-Tetrachlorophenol	mg/kg	-	-	ND (0.18)	-	ND (0.17)	-	-	-
2,4,5-Trichlorophenol	mg/kg	68000	-	ND (0.18)	-	ND (0.17)	-	-	-
2,4,6-Trichlorophenol	mg/kg	74	-	ND (0.18)	-	ND (0.17)	-	-	-
Acenaphthene	mg/kg	37000	ND (0.036)	ND (0.035)	ND (0.034)	ND (0.034)	ND (0.039)	ND (0.034)	ND (0.034)
Acenaphthylene	mg/kg	300000	0.0442	0.0179 J	0.34	0.34	ND (0.039)	ND (0.034)	ND (0.034)
Acetophenone	mg/kg	5	-	ND (0.18)	-	ND (0.17)	-	-	-
Anthracene	mg/kg	30000	0.0389	0.0187 J	0.234	0.234	ND (0.039)	ND (0.034)	ND (0.034)
Atrazine	mg/kg	2400	-	ND (0.071)	-	ND (0.069)	-	-	-
Benzo(a)anthracene	mg/kg	2	0.117	0.0584	0.8	0.8	ND (0.039)	0.0175 J	ND (0.034)
Benzo(a)pyrene	mg/kg	0.2	0.113	0.0578	0.822	0.822	ND (0.039)	ND (0.034)	ND (0.034)
Benzo(b)fluoranthene	mg/kg	2	0.221	0.106	1.81	1.81	ND (0.039)	0.0166 J	ND (0.034)
Benzo(g,h,i)perylene	mg/kg	30000	0.0843	0.0522	0.668	0.668	ND (0.039)	ND (0.034)	ND (0.034)
Benzo(k)fluoranthene	mg/kg	23	0.078	0.0427	0.536	0.536	ND (0.039)	ND (0.034)	ND (0.034)
4-Bromophenyl phenyl ether	mg/kg	-	-	ND (0.071)	-	ND (0.069)	-	-	-
Butyl benzyl phthalate	mg/kg	14000	-	ND (0.071)	-	ND (0.069)	-	-	-
1,1'-Biphenyl	mg/kg	34000	-	ND (0.071)	-	ND (0.069)	-	-	-
Benzaldehyde	mg/kg	68000	-	ND (0.18)	-	ND (0.17)	-	-	-
2-Chloronaphthalene	mg/kg	-	-	ND (0.071)	-	ND (0.069)	-	-	-
4-Chloroaniline	mg/kg	-	-	ND (0.18)	-	ND (0.17)	-	-	-
Carbazole	mg/kg	96	-	ND (0.071)	-	0.0671 J	-	-	-
Caprolactam	mg/kg	340000	-	ND (0.071)	-	ND (0.069)	-	-	-
Chrysene	mg/kg	230	0.157	0.0805	1.1	1.1	ND (0.039)	0.0154 J	ND (0.034)
bis(2-Chloroethoxy)methane	mg/kg	-	-	ND (0.071)	-	ND (0.069)	-	-	-
bis(2-Chloroethyl)ether	mg/kg	2	-	ND (0.071)	-	ND (0.069)	-	-	-
bis(2-Chloroisopropyl)ether	mg/kg	67	-	ND (0.071)	-	ND (0.069)	-	-	-
4-Chlorophenyl phenyl ether	mg/kg	-	-	ND (0.071)	-	ND (0.069)	-	-	-
2,4-Dinitrotoluene	mg/kg	3	-	ND (0.035)	-	ND (0.034)	-	-	-
2,6-Dinitrotoluene	mg/kg	3	-	ND (0.035)	-	ND (0.034)	-	-	-
3,3'-Dichlorobenzidine	mg/kg	4	-	ND (0.071)	-	ND (0.069)	-	-	-
1,4-Dioxane	mg/kg	-	-	ND (0.035)	-	ND (0.034)	-	-	-
Dibenzo(a,h)anthracene	mg/kg	0.2	0.0257 J	0.0149 J	0.167	0.167	ND (0.039)	ND (0.034)	ND (0.034)
Dibenzofuran	mg/kg	-	-	ND (0.071)	-	ND (0.069)	-	-	-
Di-n-butyl phthalate	mg/kg	68000	-	ND (0.071)	-	ND (0.069)	-	-	-
Di-n-octyl phthalate	mg/kg	27000	-	ND (0.071)	-	ND (0.069)	-	-	-
Diethyl phthalate	mg/kg	550000	-	ND (0.071)	-	ND (0.069)	-	-	-
Dimethyl phthalate	mg/kg	-	-	ND (0.071)	-	ND (0.069)	-	-	-
bis(2-Ethylhexyl)phthalate	mg/kg	140	-	ND (0.071)	-	ND (0.069)	-	-	-
Fluoranthene	mg/kg	24000	0.181	0.0964	1.08	1.08	ND (0.039)	0.0265 J	ND (0.034)
Fluorene	mg/kg	24000	ND (0.036)	ND (0.035)	ND (0.034)	ND (0.034)	ND (0.039)	ND (0.034)	ND (0.034)
Hexachlorobenzene	mg/kg	1	-	ND (0.071)	-	ND (0.069)	-	-	-
Hexachlorobutadiene	mg/kg	25	-	ND (0.035)	-	ND (0.034)	-	-	-
Hexachlorocyclopentadiene	mg/kg	110	-	ND (0.35)	-	ND (0.34)	-	-	-
Hexachloroethane	mg/kg	140	-	ND (0.18)	-	ND (0.17)	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	2	0.0931	0.0635	0.766	0.766	ND (0.039)	ND (0.034)	ND (0.034)
Isophorone	mg/kg	2000	-	ND (0.071)	-	ND (0.069)	-	-	-
2-Methylnaphthalene	mg/kg	2400	-	ND (0.071)	-	ND (0.069)	-	-	-
2-Nitroaniline	mg/kg	23000	-	ND (0.18)	-	ND (0.17)	-	-	-
3-Nitroaniline	mg/kg	-	-	ND (0.18)	-	ND (0.17)	-	-	-
4-Nitroaniline	mg/kg	-	-	ND (0.18)	-	ND (0.17)	-	-	-
Naphthalene	mg/kg	17	ND (0.036)	ND (0.035)	ND (0.034)	ND (0.034)	ND (0.039)	ND (0.034)	ND (0.034)
Nitrobenzene	mg/kg	340	-	ND (0.071)	-	ND (0.069)	-	-	-
N-Nitroso-di-n-propylamine	mg/kg	0.3	-	ND (0.071)	-	ND (0.069)	-	-	-
N-Nitrosodiphenylamine	mg/kg	390	-	ND (0.18)	-	ND (0.17)	-	-	-
Phenanthrene	mg/kg	300000	0.0242 J	ND (0.035)	0.117	0.117	ND (0.039)	0.0181 J	ND (0.034)
Pyrene	mg/kg	18000	0.24	0.106	1.27	1.27	ND (0.039)	0.0266 J	ND (0.034)
1,2,4,5-Tetrachlorobenzene	mg/kg	-	-	ND (0.18)	-	ND (0.17)	-	-	-

### Summary of Soil Analytical Results at AOC-62 – Inactive Railroad Spur (Between Canning Plant and QC Lab)

All results in mg/kg unless otherwise noted.	
mg/kg	milligrams per kilogram
J	Estimated Value
NS	Not Sampled
ND	Not Detected
NA	Not Analyzed
( )	Method Detection Limit
B	Compound Found in Blank
**	Health based standard defaults to soil saturation limit
o	Result is from 2nd run
a	Result is from 2nd run
	Exceeds NIDFP Non-Residential Soil Remediation Standard

Table 4-1  
Hess Corporation - Former Port Reading Complex (HC-PR) - 750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Analytical Results at AOC 63 - Former Rail Lines (Vacant Land North)

Client Sample ID:			NJ Non-Residential Direct Contact																													
			VLRR-SS-1 (2.0-2.5)	VLRR-SS-2 (3.5-4.0)	VLRR-SS-3 (1.5-2.0)	VLRR-SS-4 (2.5-3.0)	VLRR-SS-5 (2.0-2.5)	VLRR-SS-6 (1.75-2.25)	VLRR-SS-7 (4.5-5.0)	VLRR-SS-8 (2.0-2.5)	VLRR-SS-9 (2.5-3.0)	VLRR-SS-9 (6.5-7.0)	VLRR-SS-10 (3.0-3.5)	VLRR-SS-11 (2.5-3.0)	VLRR-SS-12 (2.5-3.0)	VLRR-SS-12 (3.75-4.25)	VLRR-SS-14 (2.0-2.5)	VLRR-SS-15 (2.5-3.0)	VLRR-SS-16 (1.5-2.0)	VLRR-SS-17 (4.0-4.5)	VLRR-SS-18 (4.0-4.5)	VLRR-SS-19 (4.0-4.5)	VLRR-SS-19 (5.5-6.0)	VLRR-SS-20 (2.5-3.0)	VLRR-SS-21 (5.25-5.75)	VLRR-SS-22 (1.5-2.0)	VLRR-SS-23 (2.5-3.0)	VLRR-SS-24 (4.5-5.0)	VLRR-SS-25 (3.0-3.5)	VLRR-SS-26 (4.0-4.5)	VLRR-SS-27 (3.0-3.5)	VLRR-SS-28 (2.75-3.25)
Lab Sample ID:		Soil (NJAC 7:26D 6/08)	JB74593-1	JB74593-2	JB74588-1	JB74588-2	JB74588-3	JB74593-3	JB74593-4	JB74848-16	JB74848-11	JB74848-12	JB74588-4	JB74588-5	JB74588-6	JB74588-7	JB74848-1	JB74848-2	JB74848-3	JB74848-14	JB74848-17	JB74848-18	JB74848-18	JB74848-18	JB74848-6	JB74848-7	JB74848-8	JB74848-9	JB74848-10	JB74848-11	JB74848-12	
Date Sampled:		26D 6/08	8/18/2014	8/18/2014	8/19/2014	8/19/2014	8/19/2014	8/18/2014	8/18/2014	8/20/2014	8/20/2014	8/20/2014	8/19/2014	8/19/2014	8/19/2014	8/19/2014	8/21/2014	8/21/2014	8/21/2014	8/20/2014	8/20/2014	8/20/2014	8/20/2014	8/20/2014	8/22/2014	8/21/2014	8/21/2014	8/21/2014	8/21/2014	8/21/2014	8/21/2014	
Matrix:			Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	
Semi-Volatile Organic Compounds																																
Acenaphthene	mg/kg	37,000	ND (0.011)	ND (0.010)	ND (0.011)	ND (0.010)	ND (0.011)	ND (0.0096)	ND (0.011)	ND (0.011)	ND (0.010)	ND (0.012)	ND (0.011)	0.829	0.824	0.279	0.276	ND (0.010)	ND (0.010)	2.26	0.22	1.07	0.173	0.0815	ND (0.011)	0.165	1.23	ND (0.011)	0.0762	1.7	0.0287 J	ND (0.011)
Acenaphthylene	mg/kg	300,000	ND (0.012)	0.0308 J	0.0399	0.0626	ND (0.013)	ND (0.011)	0.0722	ND (0.012)	ND (0.011)	ND (0.013)	ND (0.012)	0.166	ND (0.011)	ND (0.013)	0.0230 J	ND (0.011)	ND (0.011)	ND (0.011)	ND (0.012)	ND (0.011)	ND (0.016)	ND (0.011)	ND (0.012)	0.0170 J	ND (0.011)	ND (0.012)	ND (0.011)	ND (0.012)	ND (0.011)	ND (0.012)
Anthracene	mg/kg	30,000	0.0196 J	0.0529	0.09	0.0835	0.145	0.0173 J	0.165	ND (0.013)	ND (0.012)	ND (0.014)	ND (0.013)	1.05	1.1	0.476	0.539	ND (0.012)	ND (0.012)	0.725	0.216	0.37	0.0725	ND (0.012)	0.0254 J	0.208	ND (0.012)	ND (0.014)	0.0647	1.93	0.0388	0.0227 J
Benzo(a)anthracene	mg/kg	2	0.0177 J	0.0406	0.0511	0.0731	0.247	0.0273 J	0.12	ND (0.012)	ND (0.011)	ND (0.013)	ND (0.012)	1.53	1.03	0.387	1.17	ND (0.011)	0.0163 J	0.103	0.19	0.118	0.0488 J	0.0429	0.0401	0.159	0.139	ND (0.013)	0.118	1.4	0.0326 J	0.0371 J
Benzo(a)pyrene	mg/kg	0.2	ND (0.011)	0.0575	0.0376	0.0638	0.167	0.0443	0.0615	ND (0.011)	ND (0.011)	ND (0.012)	ND (0.011)	0.844	0.809	0.286	0.844	ND (0.011)	ND (0.011)	0.0303 J	0.132	0.0533	0.0269 J	0.0229 J	0.0340 J	0.121	0.0864	ND (0.012)	0.0924	0.901	0.0192 J	0.0376 J
Benzo(b)fluoranthene	mg/kg	2	0.0428	0.0712	0.107	0.171	0.505	0.042	0.2	ND (0.013)	ND (0.012)	ND (0.013)	0.0206 J	1.8	0.563	0.21	1.05	ND (0.012)	ND (0.012)	0.0431	0.101	0.0715	0.0725	0.0348	0.0422	0.101	0.0557	ND (0.013)	0.0713	0.612	0.0240 J	0.0318 J
Benzo(g,h,i)perylene	mg/kg	30,000	0.0155 J	0.0527	0.0351 J	0.0594	0.143	0.0428	0.0559	ND (0.014)	ND (0.013)	ND (0.015)	ND (0.014)	0.477	0.299	0.108	0.397	ND (0.013)	ND (0.013)	0.0155 J	0.0561	0.0244 J	ND (0.018)	0.0167 J	0.0235 J	0.049	0.0419	ND (0.014)	0.0499	0.341	0.0154 J	0.0218 J
Benzo(k)fluoranthene	mg/kg	23	ND (0.014)	0.0232 J	0.0298 J	0.0602	0.157	ND (0.012)	0.0553	ND (0.014)	ND (0.013)	ND (0.015)	ND (0.014)	0.559	0.132	0.0417	0.331	ND (0.013)	ND (0.013)	0.0176 J	0.0299 J	0.0272 J	0.0249 J	ND (0.013)	ND (0.015)	0.0176 J	0.0217 J	ND (0.015)	0.0190 J	0.198	ND (0.013)	ND (0.015)
Chrysene	mg/kg	230	0.0437	0.0931	0.129	0.21	0.485	0.0406	0.231	ND (0.013)	ND (0.012)	ND (0.014)	0.0188 J	2.27	1.31	0.479	1.11	ND (0.012)	0.0182 J	0.113	0.249	0.146	0.095	0.0618	0.0526	0.207	0.307	ND (0.013)	0.18	1.8	0.0448	0.0545
Dibenzo(a,h)anthracene	mg/kg	0.2	ND (0.012)	ND (0.012)	ND (0.012)	0.0200 J	ND (0.013)	ND (0.011)	0.0198 J	ND (0.013)	ND (0.012)	ND (0.014)	ND (0.013)	0.184	0.114	0.0427	0.143	ND (0.012)	ND (0.012)	ND (0.012)	ND (0.012)	ND (0.012)	ND (0.017)	ND (0.011)	ND (0.013)	0.0166 J	ND (0.012)	ND (0.013)	0.0193 J	0.12	ND (0.012)	ND (0.013)
Fluoranthene	mg/kg	24,000	0.039	0.0457	0.13	0.166	0.575	0.0347	0.44	ND (0.017)	ND (0.015)	ND (0.018)	0.0204 J	2.38	1.52	0.568	2.47	ND (0.015)	0.0173 J	0.777	0.394	0.522	0.193	0.136	0.0883	0.342	0.181	ND (0.017)	0.236	2.72	0.0949	0.0442
Fluorene	mg/kg	24,000	ND (0.012)	ND (0.012)	0.0141 J	ND (0.012)	ND (0.013)	ND (0.011)	0.0222 J	ND (0.012)	ND (0.011)	ND (0.013)	ND (0.012)	0.482	1.32	0.484	0.261	ND (0.011)	ND (0.012)	0.216	0.163	1.15	0.14	0.0582	ND (0.013)	0.245	1.62	ND (0.013)	ND (0.012)	2.21	ND (0.012)	ND (0.013)
Indeno(1,2,3-cd)pyrene	mg/kg	2	0.0162 J	0.0343 J	0.0309 J	0.0525	0.169	0.0320 J	0.0623	ND (0.013)	ND (0.012)	ND (0.014)	ND (0.013)	0.539	0.273	0.0937	0.481	ND (0.012)	ND (0.012)	0.0142 J	0.0422	0.0218 J	0.0286 J	0.0164 J	0.0283 J	0.0386	0.0287 J	ND (0.014)	0.0373	0.265	ND (0.012)	0.0183 J
Naphthalene	mg/kg	17	0.0300 J	ND (0.0099)	0.109	0.0738	0.108	ND (0.0090)	0.07	ND (0.010)	ND (0.0095)	ND (0.011)	ND (0.010)	0.195	1.93	0.214	0.232	ND (0.0095)	ND (0.0097)	ND (0.0097)	0.0764	ND (0.0093)	0.147	ND (0.0092)	ND (0.011)	0.0250 J	0.518	ND (0.011)	ND (0.0098)	0.0808	ND (0.0096)	ND (0.011)
Phenanthrene	mg/kg	300,000	0.0549	0.0220 J	0.186	0.165	0.289	0.0444	0.216	ND (0.017)	ND (0.016)	ND (0.018)	0.0222 J	1.18	5.81	2.15	2	ND (0.016)	ND (0.016)	5.76	0.597	3.05	0.373	0.0485	0.0497	0.893	5.08	ND (0.018)	0.0527	5.83	ND (0.016)	0.0235 J
Pyrene	mg/kg	18,000	0.0308 J	0.116	0.13	0.197	0.482	0.0477	0.326	ND (0.014)	ND (0.013)	ND (0.015)	0.0210 J	3.46	2.71	1.14	2.18	ND (0.013)	0.0208 J	0.494	0.45	0.406	0.0812	0.0981	0.062	0.427	0.547	ND (0.015)	0.263	3.34	0.066	0.0525
Polychlorinated Biphenyls																																
Aroclor 1016	mg/kg	1	ND (0.0096)	ND (0.0096)	ND (0.0091)	ND (0.0089)	ND (0.0094)	ND (0.0083)	ND (0.010)	ND (0.0089)	ND (0.0088)	ND (0.010)	ND (0.0091)	ND (0.011)	ND (0.0096)	ND (0.012)	ND (0.0089)	ND (0.0084)	ND (0.0084)	ND (0.010)	ND (0.0092)	ND (0.0086)	ND (0.014)	ND (0.0087)	ND (0.0099)	ND (0.0090)	ND (0.0082)	ND (0.010)	ND (0.0083)	ND (0.0083)	ND (0.0097)	ND (0.010)
Aroclor 1221	mg/kg	1	ND (0.022)	ND (0.022)	ND (0.021)	ND (0.021)	ND (0.022)	ND (0.019)	ND (0.024)	ND (0.021)	ND (0.020)	ND (0.024)	ND (0.021)	ND (0.026)	ND (0.022)	ND (0.027)	ND (0.021)	ND (0.019)	ND (0.020)	ND (0.023)	ND (0.021)	ND (0.020)	ND (0.032)	ND (0.020)	ND (0.023)	ND (0.021)	ND (0.022)	ND (0.024)	ND (0.019)	ND (0.019)	ND (0.022)	ND (0.024)
Aroclor 1232	mg/kg	1	ND (0.019)	ND (0.019)	ND (0.018)	ND (0.017)	ND (0.018)	ND (0.016)	ND (0.020)	ND (0.017)	ND (0.017)	ND (0.020)	ND (0.018)	ND (0.022)	ND (0.019)	ND (0.023)	ND (0.017)	ND (0.016)	ND (0.016)	ND (0.020)	ND (0.017)	ND (0.017)	ND (0.017)	ND (0.019)	ND (0.017)	ND (0.016)	ND (0.020)	ND (0.016)	ND (0.016)	ND (0.019)	ND (0.020)	
Aroclor 1242	mg/kg	1	ND (0.012)	ND (0.012)	ND (0.011)	ND (0.011)	ND (0.011)	ND (0.010)	ND (0.013)	ND (0.011)	ND (0.011)	ND (0.013)	ND (0.011)	ND (0.014)	ND (0.012)	ND (0.014)	ND (0.011)	ND (0.010)	ND (0.010)	ND (0.012)	ND (0.011)	ND (0.010)	ND (0.010)	ND (0.012)	ND (0.011)	ND (0.012)	ND (0.011)	ND (0.010)	ND (0.010)	ND (0.010)	ND (0.012)	ND (0.013)
Aroclor 1248	mg/kg	1	ND (0.011)	ND (0.011)	ND (0.011)	ND (0.010)	ND (0.011)	ND (0.0097)	ND (0.012)	ND (0.010)	ND (0.010)	ND (0.012)	ND (0.011)	ND (0.013)	ND (0.011)	ND (0.014)	ND (0.010)	ND (0.0098)	ND (0.0098)	ND (0.012)	ND (0.011)	ND (0.010)	ND (0.016)	ND (0.010)	ND (0.012)	ND (0.010)	ND (0.0097)	ND (0.0097)	ND (0.0097)	ND (0.011)	ND (0.012)	
Aroclor 1254	mg/kg	1	ND (0.017)	ND (0.017)	ND (0.016)	ND (0.016)	ND (0.017)	0.159	ND (0.018)	ND (0.016)	ND (0.016)	ND (0.016)	ND (0.019)	ND (0.016)	ND (0.020)	ND (0.017)	ND (0.021.															

Table 4-1  
Hess Corporation - Former Port Reading Complex (HC-PR) - 750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Analytical Results at AOC 63 - Former Rail Lines (Vacant Land North)

Client Sample ID:		NJ Non-Residential Direct Contact Soil	VLRR-SS-29	VLRR-SS-30	VLRR-SS-31
Lab Sample ID:			JB74808-1	JB74820-1	JB74820-2
Date Sampled:			8/22/2014	8/20/2014	8/20/2014
Depth:			(3.0-3.5)	(3.0-3.5)	(5.0-5.5)
Volatile Organic Compounds					
Acetone	mg/kg	-	ND	0.0170 J	0.0282
Benzene	mg/kg	5	ND	ND	ND
Bromochloromethane	mg/kg	-	ND	ND	ND
Bromodichloromethane	mg/kg	3	ND	ND	ND
Bromoform	mg/kg	280	ND	ND	ND
Bromomethane	mg/kg	59	ND	ND	ND
2-Butanone (MEK)	mg/kg	44,000	ND	ND	ND
Carbon disulfide	mg/kg	110,000	ND	ND	0.00096 J
Carbon tetrachloride	mg/kg	2	ND	ND	ND
Chlorobenzene	mg/kg	7,400	ND	ND	ND
Chloroethane	mg/kg	1,100	ND	ND	ND
Chloroform	mg/kg	2	ND	ND	ND
Chloromethane	mg/kg	12	ND	ND	ND
Cyclohexane	mg/kg	-	ND	ND	ND
1,2-Dibromo-3-chloropropane	mg/kg	0.2	ND	ND	ND
Dibromochloromethane	mg/kg	8	ND	ND	ND
1,2-Dibromoethane	mg/kg	0.04	ND	ND	ND
1,2-Dichlorobenzene	mg/kg	59,000	ND	ND	ND
1,3-Dichlorobenzene	mg/kg	59,000	ND	ND	ND
1,4-Dichlorobenzene	mg/kg	13	ND	ND	ND
Dichlorodifluoromethane	mg/kg	230,000	ND	ND	ND
1,1-Dichloroethane	mg/kg	24	ND	ND	ND
1,2-Dichloroethane	mg/kg	3	ND	ND	ND
1,1-Dichloroethene	mg/kg	150	ND	ND	ND
cis-1,2-Dichloroethene	mg/kg	560	ND	ND	ND
trans-1,2-Dichloroethene	mg/kg	720	ND	ND	ND
1,2-Dichloropropane	mg/kg	5	ND	ND	ND
cis-1,3-Dichloropropene	mg/kg	7	ND	ND	ND
trans-1,3-Dichloropropene	mg/kg	7	ND	ND	ND
Ethylbenzene	mg/kg	110,000	0.0125 J	ND	ND
Freon 113	mg/kg	-	ND	ND	ND
2-Hexanone	mg/kg	-	ND	ND	ND
Isopropylbenzene	mg/kg	-	0.0788 J	ND	ND
Methyl Acetate	mg/kg	-	0.0948 J	ND	ND
Methylcyclohexane	mg/kg	-	ND	ND	ND
Methyl Tert Butyl Ether	mg/kg	320	ND	ND	ND
4-Methyl-2-pentanone(MIBK)	mg/kg	-	ND	ND	ND
Volatile Organic Compounds (continued)					
Methylene chloride	mg/kg	97	ND	ND	ND
Styrene	mg/kg	260	ND	ND	ND
1,1,2,2-Tetrachloroethane	mg/kg	3	ND	ND	ND
Tetrachloroethene	mg/kg	5	ND	ND	ND
Toluene	mg/kg	91,000	ND	ND	ND
1,2,3-Trichlorobenzene	mg/kg	-	ND	ND	ND
1,2,4-Trichlorobenzene	mg/kg	820	ND	ND	ND
1,1,1-Trichloroethane	mg/kg	4,200	ND	ND	ND
1,1,2-Trichloroethane	mg/kg	6	ND	ND	ND
Trichloroethene	mg/kg	20	ND	ND	ND
Trichlorofluoromethane	mg/kg	340,000	ND	ND	ND
Vinyl chloride	mg/kg	2	ND	ND	ND
m,p-Xylene	mg/kg	170,000	ND	ND	ND
o-Xylene	mg/kg	170,000	ND	ND	ND
Xylene (total)	mg/kg	170,000	ND	ND	ND
Volatile Organic Tentatively Identified Compounds					
Total TIC, Volatile	mg/kg	-	125.3 J (15)	0	0
Total Alkanes	mg/kg	-	0	0	0
Semi-Volatile Organic Compounds					
2-Chlorophenol	mg/kg	2,200	ND	ND	ND
4-Chloro-3-methyl phenol	mg/kg	-	ND	ND	ND
2,4-Dichlorophenol	mg/kg	2,100	ND	ND	ND
2,4-Dimethylphenol	mg/kg	14,000	ND	ND	ND
2,4-Dinitrophenol	mg/kg	1,400	ND	ND	ND
4,6-Dinitro-o-cresol	mg/kg	68	ND	ND	ND
2-Methylphenol	mg/kg	3,400	ND	ND	ND
3&4-Methylphenol	mg/kg	-	ND	ND	ND
2-Nitrophenol	mg/kg	-	ND	ND	ND
4-Nitrophenol	mg/kg	-	ND	ND	ND
Pentachlorophenol	mg/kg	10	ND	ND	ND
Phenol	mg/kg	210,000	ND	ND	ND
2,3,4,6-Tetrachlorophenol	mg/kg	-	ND	ND	ND
2,4,5-Trichlorophenol	mg/kg	68,000	ND	ND	ND
2,4,6-Trichlorophenol	mg/kg	74	ND	ND	ND
Acenaphthene	mg/kg	37,000	2.82	ND	ND
Acenaphthylene	mg/kg	300,000	ND	ND	ND
Acetophenone	mg/kg	5	ND	ND	ND
Anthracene	mg/kg	30,000	ND	ND	ND



Table 4-1  
Hess Corporation - Former Port Reading Complex (HC-PR) - 750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Analytical Results at AOC 63 - Former Rail Lines (Vacant Land North)

Client Sample ID:		NJ Non-Residential Direct Contact Soil	VLRR-SS-29	VLRR-SS-30	VLRR-SS-31
Lab Sample ID:			JB74808-1	JB74820-1	JB74820-2
Date Sampled:			8/22/2014	8/20/2014	8/20/2014
Depth:			(3.0-3.5)	(3.0-3.5)	(5.0-5.5)
Atrazine	mg/kg	2400	ND	ND	ND
Semi-Volatile Organic Compounds					
Benzo(a)anthracene	mg/kg	2	0.0344	0.0305 J	ND
Benzo(a)pyrene	mg/kg	0.2	0.0318 J	0.0209 J	ND
Benzo(b)fluoranthene	mg/kg	2	0.0268 J	0.0280 J	ND
Benzo(g,h,i)perylene	mg/kg	30,000	0.0243 J	ND	ND
Benzo(k)fluoranthene	mg/kg	23	ND	ND	ND
4-Bromophenyl phenyl ether	mg/kg	-	ND	ND	ND
Butyl benzyl phthalate	mg/kg	14,000	ND	ND	ND
1,1'-Biphenyl	mg/kg	34,000	ND	ND	ND
Benzaldehyde	mg/kg	68,000	ND	ND	ND
2-Chloronaphthalene	mg/kg	-	ND	ND	ND
4-Chloroaniline	mg/kg	-	ND	ND	ND
Carbazole	mg/kg	96	ND	ND	ND
Caprolactam	mg/kg	340,000	ND	ND	ND
Chrysene	mg/kg	230	0.0395	0.0365 J	ND
bis(2-Chloroethoxy)methane	mg/kg	-	ND	ND	ND
bis(2-Chloroethyl)ether	mg/kg	2	ND	ND	ND
bis(2-Chloroisopropyl)ether	mg/kg	67	ND	ND	ND
4-Chlorophenyl phenyl ether	mg/kg	-	ND	ND	ND
2,4-Dinitrotoluene	mg/kg	3	ND	ND	ND
2,6-Dinitrotoluene	mg/kg	3	ND	ND	ND
3,3'-Dichlorobenzidine	mg/kg	4	ND	ND	ND
1,4-Dioxane	mg/kg	-	ND	ND	ND
Dibenzo(a,h)anthracene	mg/kg	0.2	ND	ND	ND
Dibenzofuran	mg/kg	-	ND	ND	ND
Di-n-butyl phthalate	mg/kg	68,000	ND	ND	0.0511 J
Di-n-octyl phthalate	mg/kg	27,000	ND	ND	ND
Diethyl phthalate	mg/kg	550,000	ND	ND	ND
Dimethyl phthalate	mg/kg	-	ND	ND	ND
bis(2-Ethylhexyl)phthalate	mg/kg	140	0.485	ND	ND
Fluoranthene	mg/kg	24,000	0.136	0.046	ND
Fluorene	mg/kg	24,000	4.51	ND	ND
Hexachlorobenzene	mg/kg	1	ND	ND	ND
Hexachlorobutadiene	mg/kg	25	ND	ND	ND
Hexachlorocyclopentadiene	mg/kg	110	ND	ND	ND
Hexachloroethane	mg/kg	140	ND	ND	ND
Semi-Volatile Organic Compounds					
Indeno(1,2,3-cd)pyrene	mg/kg	2	0.0164 J	ND (0.013)	ND (0.014)
Isophorone	mg/kg	2,000	ND	ND	ND
2-Methylnaphthalene	mg/kg	2,400	0.75	ND	ND
2-Nitroaniline	mg/kg	23,000	ND	ND	ND
3-Nitroaniline	mg/kg	-	ND	ND	ND
4-Nitroaniline	mg/kg	-	ND	ND	ND
Naphthalene	mg/kg	17	ND	ND	ND
Nitrobenzene	mg/kg	340	ND	ND	ND
N-Nitroso-di-n-propylamine	mg/kg	0.3	ND	ND	ND
N-Nitrosodiphenylamine	mg/kg	390	ND	ND	ND
Phenanthrene	mg/kg	300,000	6.83	0.0289 J	ND
Pyrene	mg/kg	18,000	0.258	0.0320 J	ND
1,2,4,5-Tetrachlorobenzene	mg/kg	-	ND	ND	ND
Semi-Volatile Organic Tentatively Identified Compounds					
Total TIC, Semi-Volatile	mg/kg	-	66.7 J (24)	1.03 J (3)	7.56 J (7)
Total Alkanes	mg/kg	-	4 J	0	0.3 J
Pesticides and Herbicides					
Aldrin	mg/kg	0.2	ND	-	-
alpha-BHC	mg/kg	0.5	ND	-	-
beta-BHC	mg/kg	2	ND	-	-
delta-BHC	mg/kg	-	ND	-	-
gamma-BHC (Lindane)	mg/kg	2	ND	-	-
alpha-Chlordane	mg/kg	1	ND	-	-
gamma-Chlordane	mg/kg	1	ND	-	-
Chlordane (alpha and gamma)	mg/kg	1	ND	-	-
Dieldrin	mg/kg	0.2	ND	-	-
4,4'-DDD	mg/kg	13	ND	-	-
4,4'-DDE	mg/kg	9	ND	-	-
4,4'-DDT	mg/kg	8	0.0180 <sup>a</sup>	-	-
Endrin	mg/kg	340	ND	-	-
Endosulfan sulfate	mg/kg	6,800	ND	-	-
Endrin aldehyde	mg/kg	-	0.0024 <sup>b</sup>	-	-
Endosulfan-I	mg/kg	6,800	ND	-	-
Endosulfan-II	mg/kg	6,800	ND	-	-
Heptachlor	mg/kg	0.7	ND	-	-
Heptachlor epoxide	mg/kg	0.3	ND	-	-
Methoxychlor	mg/kg	5,700	ND	-	-
Endrin ketone	mg/kg	-	ND	-	-
Toxaphene	mg/kg	3	ND	-	-
Aroclor 1016	mg/kg	1	ND	ND	ND

**Hess Corporation - Former Port Reading Complex (HC-PR) - 750 Cliff Road, Port Reading, New Jersey**  
**Summary of Soil Analytical Results at AOC 63 - Former Rail Lines (Vacant Land North)**

Client Sample ID:		NJ Non-Residential Direct Contact Soil	VLRR-SS-29	VLRR-SS-30	VLRR-SS-31
Lab Sample ID:			JB74808-1	JB74820-1	JB74820-2
Date Sampled:			8/22/2014	8/20/2014	8/20/2014
Depth:			(3.0-3.5)	(3.0-3.5)	(5.0-5.5)
Aroclor 1221	mg/kg	1	ND	ND	ND
Polychlorinated Biphenyls					
Aroclor 1232	mg/kg	1	ND	ND	ND
Aroclor 1242	mg/kg	1	ND	ND	ND
Aroclor 1248	mg/kg	1	ND	ND	ND
Aroclor 1254	mg/kg	1	0.0725	ND	ND
Aroclor 1260	mg/kg	1	ND	ND	ND
Polychlorinated Biphenyls (continued)					
Aroclor 1268	mg/kg	1	ND	ND	ND
Aroclor 1262	mg/kg	1	ND	ND	ND
Metal Compounds					
Aluminum	mg/kg	-	3,960	2,520	8,390
Antimony	mg/kg	450	ND (2.1)	ND (6.6) <sup>d</sup>	ND (2.3)
Arsenic	mg/kg	19	6.9	19.4	4.3
Barium	mg/kg	59,000	26.6	78.7	ND
Beryllium	mg/kg	140	0.52	0.35	0.92
Cadmium	mg/kg	78	0.59	ND	ND
Calcium	mg/kg	-	6,720	879	ND
Chromium	mg/kg	-	28.3	7.3 <sup>d</sup>	13.9
Cobalt	mg/kg	590	ND	6	7.7
Copper	mg/kg	45,000	14.8	82.2 <sup>d</sup>	7.7
Iron	mg/kg	-	19,600	98,000	15,900
Lead	mg/kg	800	35.2	122 <sup>d</sup>	5.2
Magnesium	mg/kg	-	1,450	ND	1,710
Manganese	mg/kg	5,900	150	189 <sup>d</sup>	67.7
Mercury	mg/kg	65	ND	0.11	ND
Nickel	mg/kg	23,000	9.7	12.2	16.4
Potassium	mg/kg	-	ND	ND	ND
Selenium	mg/kg	5,700	ND	ND	ND
Silver	mg/kg	5,700	ND	1.8 <sup>d</sup>	0.63
Sodium	mg/kg	-	ND	ND	ND
Thallium	mg/kg	79	ND	ND	ND
Vanadium	mg/kg	1,100	22.7	11.8	25.3
Zinc	mg/kg	110,000	116	186	57.4
General Chemistry					
Cyanide	mg/kg	23,000	ND	ND	ND
Solids, Percent	%	-	93.8	87.3	84.9

All results in mg/kg unless otherwise noted.	
mg/kg	milligrams per kilogram
J	Estimated Value
NS	Not Sampled
ND	Not Detected
NA	Not Analyzed
( )	Method Detection Limit
B	Compound Found in Blank
**	Health based standard defaults to soil saturation limit
b	Result is from 2nd run
a	Result is from 2nd run
Exceeds NJDEP Non-Residential Soil Remediation Standard	

Table 4-1  
Hess Corporation - Former Port Reading Complex (HC-PR) - 750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Analytical Results at AOC 73 - TEL Building (North)

Client Sample ID:		NJ Non-Residential Direct Contact	TEL1-SS-2 (0.5-1.0)	TEL1-SS-3 (1.5-2.0)	TEL1-SS-4 (1.5-2.0)
Lab Sample ID:		Soil (NJAC 7:26D 6/08)	JB77666-1	JB77666-2	JB77666-3
Date Sampled:			9/24/2014	9/24/2014	9/24/2014
Matrix:			Soil	Soil	Soil
<b>Volatile Organic Compounds</b>					
Acetone	mg/kg	-	0.0612	0.054	0.063
Benzene	mg/kg	5	ND (0.00017)	ND (0.00020)	ND (0.00026)
Bromochloromethane	mg/kg	-	ND (0.00027)	ND (0.00032)	ND (0.00041)
Bromodichloromethane	mg/kg	3	ND (0.00020)	ND (0.00023)	ND (0.00030)
Bromoforn	mg/kg	280	ND (0.00017)	ND (0.00020)	ND (0.00026)
Bromomethane	mg/kg	59	ND (0.00028)	ND (0.00033)	ND (0.00043)
2-Butanone (MEK)	mg/kg	44,000	ND (0.0018)	ND (0.0021)	ND (0.0028)
Carbon disulfide	mg/kg	110,000	ND (0.00029)	0.00085 J	0.00048 J
Carbon tetrachloride	mg/kg	2	ND (0.00014)	ND (0.00016)	ND (0.00021)
Chlorobenzene	mg/kg	7,400	ND (0.00014)	ND (0.00016)	ND (0.00021)
Chloroethane	mg/kg	1,100	ND (0.00028)	ND (0.00033)	ND (0.00042)
Chloroform	mg/kg	2	ND (0.00013)	ND (0.00015)	ND (0.00020)
Chloromethane	mg/kg	12	ND (0.00030)	ND (0.00035)	ND (0.00045)
Cyclohexane	mg/kg	-	ND (0.00034)	ND (0.00040)	ND (0.00052)
1,2-Dibromo-3-chloropropane	mg/kg	0.2	ND (0.00038)	ND (0.00045)	ND (0.00058)
Dibromochloromethane	mg/kg	8	ND (0.00017)	ND (0.00020)	ND (0.00026)
1,2-Dibromoethane	mg/kg	0.04	ND (0.00018)	ND (0.00021)	ND (0.00027)
1,2-Dichlorobenzene	mg/kg	59,000	ND (0.00018)	ND (0.00022)	ND (0.00028)
1,3-Dichlorobenzene	mg/kg	59,000	ND (0.00019)	ND (0.00022)	ND (0.00029)
1,4-Dichlorobenzene	mg/kg	13	ND (0.00016)	ND (0.00019)	ND (0.00024)
Dichlorodifluoromethane	mg/kg	230,000	ND (0.00051)	ND (0.00060)	ND (0.00077)
1,1-Dichloroethane	mg/kg	24	ND (0.00018)	ND (0.00021)	ND (0.00027)
1,2-Dichloroethane	mg/kg	3	ND (0.00025)	ND (0.00029)	ND (0.00038)
1,1-Dichloroethene	mg/kg	150	ND (0.00027)	ND (0.00032)	ND (0.00041)
cis-1,2-Dichloroethene	mg/kg	560	ND (0.00025)	ND (0.00030)	ND (0.00039)
trans-1,2-Dichloroethene	mg/kg	720	ND (0.00018)	ND (0.00022)	ND (0.00028)
1,2-Dichloropropane	mg/kg	5	ND (0.00017)	ND (0.00020)	ND (0.00025)
cis-1,3-Dichloropropene	mg/kg	7	ND (0.00012)	ND (0.00015)	ND (0.00019)
trans-1,3-Dichloropropene	mg/kg	7	ND (0.00017)	ND (0.00019)	ND (0.00025)
Ethylbenzene	mg/kg	110,000	ND (0.00019)	ND (0.00022)	ND (0.00029)
Freon 113	mg/kg	-	ND (0.00053)	ND (0.00062)	ND (0.00080)
2-Hexanone	mg/kg	-	ND (0.0016)	ND (0.0018)	ND (0.0024)
Isopropylbenzene	mg/kg	-	ND (0.00018)	ND (0.00021)	ND (0.00027)
Methyl Acetate	mg/kg	-	ND (0.0011)	ND (0.0013)	ND (0.0016)
Methylcyclohexane	mg/kg	-	ND (0.00021)	ND (0.00025)	ND (0.00032)
Methyl Tert Butyl Ether	mg/kg	320	ND (0.00016)	ND (0.00019)	ND (0.00025)
4-Methyl-2-pentanone(MIBK)	mg/kg	-	ND (0.00052)	ND (0.00061)	ND (0.00079)
Methylene chloride	mg/kg	97	ND (0.0015)	ND (0.0017)	0.0023 J
Styrene	mg/kg	260	ND (0.00018)	ND (0.00021)	ND (0.00027)
1,1,2,2-Tetrachloroethane	mg/kg	3	ND (0.00021)	ND (0.00025)	ND (0.00032)
Tetrachloroethene	mg/kg	5	ND (0.00017)	ND (0.00020)	ND (0.00026)
Toluene	mg/kg	91,000	ND (0.00023)	ND (0.00027)	ND (0.00034)
1,2,3-Trichlorobenzene	mg/kg	-	ND (0.00020)	ND (0.00023)	ND (0.00030)
1,2,4-Trichlorobenzene	mg/kg	820	ND (0.00018)	ND (0.00021)	ND (0.00027)
1,1,1-Trichloroethane	mg/kg	4,200	ND (0.00014)	ND (0.00016)	ND (0.00021)
1,1,2-Trichloroethane	mg/kg	6	ND (0.00022)	ND (0.00025)	ND (0.00033)
Trichloroethene	mg/kg	20	ND (0.00020)	ND (0.00023)	ND (0.00030)
Trichlorofluoromethane	mg/kg	340,000	ND (0.00017)	ND (0.00020)	ND (0.00025)
Vinyl chloride	mg/kg	2	ND (0.00036)	ND (0.00043)	ND (0.00055)
m,p-Xylene	mg/kg	170,000	ND (0.00040)	ND (0.00047)	ND (0.00061)
o-Xylene	mg/kg	170,000	ND (0.00021)	ND (0.00025)	ND (0.00032)
Xylene (total)	mg/kg	170,000	ND (0.00021)	ND (0.00025)	ND (0.00032)
Total TIC, Volatile	mg/kg	-	0	0	0
Total Alkanes	mg/kg	-	0	0	0.008 J
<b>Metal Compounds</b>					
Lead	mg/kg	800	18.9	14.4	14.9
<b>General Chemistry</b>					
Solids, Percent	%	-	86.8	83.9	76.6
All results in mg/kg unless otherwise noted. mg/kg milligrams per kilogram J Estimated Value NS Not Sampled ND Not Detected NA Not Analyzed ( ) Method Detection Limit B Compound Found in Blank ** Health based standard defaults to soil saturation limit <sup>b</sup> Result is from 2nd run <sup>a</sup> Result is from 2nd run Exceeds NJDEP Non-Residential Soil Remediation Standard					

Table 4-46  
Former Hess Terminal - 750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Sample Results at AOC 75 - Former Canning Plant

Client Sample ID:		NJ Non-Residential Direct Contact Soil	CPTF-SS-1	CPTF-SS-1	CPTF-SS-2	CPTF-SS-3	CPTF-SS-4	CPTF-SS-5	CPTF-SS-6
Lab Sample ID:			JB98804-1	JB98804-1R	JB98804-2	JB98804-3	JB98804-4	JB98804-5	JB98804-6
Date Sampled:			7/8/2015	7/8/2015	7/8/2015	7/8/2015	7/8/2015	7/8/2015	7/8/2015
Matrix:			Soil	Soil	Soil	Soil	Soil	Soil	Soil
Depth:			1.5-2.0 ft	1.5-2.0 ft	8.0-8.5 ft	12.5-13.0 ft	12.0-12.5 ft	0.5-1.0 ft	0.5-1.0 ft
GC/MS Volatiles (SW846 8260C)									
Acetone	mg/kg	NA	-	0.0199	-	-	-	-	-
Bromochloromethane	mg/kg	-	-	ND (0.00029)	-	-	-	-	-
Bromodichloromethane	mg/kg	3	-	ND (0.00015)	-	-	-	-	-
Bromoform	mg/kg	280	-	ND (0.00022)	-	-	-	-	-
Bromomethane	mg/kg	59	-	ND (0.00034)	-	-	-	-	-
2-Butanone (MEK)	mg/kg	44000	-	0.0028 J	-	-	-	-	-
Carbon disulfide	mg/kg	110000	-	ND (0.00021)	-	-	-	-	-
Carbon tetrachloride	mg/kg	2	-	ND (0.00021)	-	-	-	-	-
Chlorobenzene	mg/kg	7400	-	ND (0.00014)	-	-	-	-	-
Chloroethane	mg/kg	1100	-	ND (0.00045)	-	-	-	-	-
Chloroform	mg/kg	2	-	ND (0.00014)	-	-	-	-	-
Chloromethane	mg/kg	12	-	ND (0.00024)	-	-	-	-	-
Cyclohexane	mg/kg	-	-	ND (0.00029)	-	-	-	-	-
1,2-Dibromo-3-chloropropane	mg/kg	0.2	-	ND (0.00051)	-	-	-	-	-
Dibromochloromethane	mg/kg	8	-	ND (0.00019)	-	-	-	-	-
1,2-Dibromoethane	mg/kg	0.04	-	ND (0.00012)	-	-	-	-	-
1,2-Dichlorobenzene	mg/kg	59000	-	ND (0.00011)	-	-	-	-	-
1,3-Dichlorobenzene	mg/kg	59000	-	ND (0.00015)	-	-	-	-	-
1,4-Dichlorobenzene	mg/kg	13	-	ND (0.00021)	-	-	-	-	-
Dichlorodifluoromethane	mg/kg	230000	-	ND (0.00034)	-	-	-	-	-
1,1-Dichloroethane	mg/kg	24	-	ND (0.00013)	-	-	-	-	-
1,2-Dichloroethane	mg/kg	3	-	ND (0.00012)	-	-	-	-	-
1,1-Dichloroethene	mg/kg	150	-	ND (0.00055)	-	-	-	-	-
cis-1,2-Dichloroethene	mg/kg	560	-	ND (0.00073)	-	-	-	-	-
trans-1,2-Dichloroethene	mg/kg	720	-	ND (0.00055)	-	-	-	-	-
1,2-Dichloropropane	mg/kg	5	-	ND (0.00022)	-	-	-	-	-
cis-1,3-Dichloropropene	mg/kg	7	-	ND (0.00011)	-	-	-	-	-
trans-1,3-Dichloropropene	mg/kg	7	-	ND (0.00017)	-	-	-	-	-
Ethylbenzene	mg/kg	110000	-	ND (0.00015)	-	-	-	-	-
Freon 113	mg/kg	-	-	ND (0.00042)	-	-	-	-	-
2-Hexanone	mg/kg	-	-	ND (0.0012)	-	-	-	-	-
Isopropylbenzene	mg/kg	-	-	ND (0.000099)	-	-	-	-	-
Methyl Acetate	mg/kg	NA	-	ND (0.00080)	-	-	-	-	-
Methylcyclohexane	mg/kg	-	-	ND (0.00021)	-	-	-	-	-
Methyl Tert Butyl Ether	mg/kg	320	-	ND (0.00014)	-	-	-	-	-
4-Methyl-2-pentanone(MIBK)	mg/kg	-	-	ND (0.00043)	-	-	-	-	-
Methylene chloride	mg/kg	97	-	0.0014 J	-	-	-	-	-
Styrene	mg/kg	260	-	ND (0.00017)	-	-	-	-	-
Tert Butyl Alcohol	mg/kg	11000	-	ND (0.0025)	-	-	-	-	-
1,1,2,2-Tetrachloroethane	mg/kg	3	-	ND (0.00016)	-	-	-	-	-
Tetrachloroethene	mg/kg	5	-	ND (0.00028)	-	-	-	-	-
Toluene	mg/kg	91000	-	0.00041 J	-	-	-	-	-
1,2,3-Trichlorobenzene	mg/kg	-	-	ND (0.00016)	-	-	-	-	-
1,2,4-Trichlorobenzene	mg/kg	820	-	ND (0.00016)	-	-	-	-	-
1,1,1-Trichloroethane	mg/kg	4200	-	ND (0.00014)	-	-	-	-	-
1,1,2-Trichloroethane	mg/kg	6	-	ND (0.00014)	-	-	-	-	-
Trichloroethene	mg/kg	20	-	ND (0.00014)	-	-	-	-	-
Trichlorofluoromethane	mg/kg	340000	-	ND (0.00023)	-	-	-	-	-
Vinyl chloride	mg/kg	2	-	ND (0.00018)	-	-	-	-	-
m,p-Xylene	mg/kg	170000	-	ND (0.00033)	-	-	-	-	-
o-Xylene	mg/kg	170000	-	ND (0.00026)	-	-	-	-	-
Xylene (total)	mg/kg	170000	-	ND (0.00026)	-	-	-	-	-
GC/MS Volatiles (SW846 8260C)									
Total TIC, Volatile	mg/kg	-	-	1.31 J	-	-	-	-	-
Total Alkanes	mg/kg	-	-	0.41 J	-	-	-	-	-



Table 4-46  
Former Hess Terminal - 750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Sample Results at AOC 75 - Former Canning Plant

Client Sample ID:		NJ Non-Residential Direct Contact Soil	CPTF-SS-1	CPTF-SS-1	CPTF-SS-2	CPTF-SS-3	CPTF-SS-4	CPTF-SS-5	CPTF-SS-6
Lab Sample ID:			JB98804-1	JB98804-1R	JB98804-2	JB98804-3	JB98804-4	JB98804-5	JB98804-6
Date Sampled:			7/8/2015	7/8/2015	7/8/2015	7/8/2015	7/8/2015	7/8/2015	7/8/2015
Matrix:			Soil	Soil	Soil	Soil	Soil	Soil	Soil
Depth:			1.5-2.0 ft	1.5-2.0 ft	8.0-8.5 ft	12.5-13.0 ft	12.0-12.5 ft	0.5-1.0 ft	0.5-1.0 ft
GC/MS Semi-volatiles (SW846 8270D)									
2-Chlorophenol	mg/kg	2200	-	ND (0.077)	-	-	-	-	-
4-Chloro-3-methyl phenol	mg/kg	-	-	ND (0.19)	-	-	-	-	-
2,4-Dichlorophenol	mg/kg	2100	-	ND (0.19)	-	-	-	-	-
2,4-Dimethylphenol	mg/kg	14000	-	ND (0.19)	-	-	-	-	-
2,4-Dinitrophenol	mg/kg	1400	-	ND (0.19)	-	-	-	-	-
4,6-Dinitro-o-cresol	mg/kg	68	-	ND (0.19)	-	-	-	-	-
2-Methylphenol	mg/kg	3400	-	ND (0.077)	-	-	-	-	-
3&4-Methylphenol	mg/kg	-	-	ND (0.077)	-	-	-	-	-
2-Nitrophenol	mg/kg	-	-	ND (0.19)	-	-	-	-	-
4-Nitrophenol	mg/kg	-	-	ND (0.39)	-	-	-	-	-
Pentachlorophenol	mg/kg	10	-	ND (0.19)	-	-	-	-	-
Phenol	mg/kg	210000	-	ND (0.077)	-	-	-	-	-
2,3,4,6-Tetrachlorophenol	mg/kg	-	-	ND (0.19)	-	-	-	-	-
2,4,5-Trichlorophenol	mg/kg	68000	-	ND (0.19)	-	-	-	-	-
2,4,6-Trichlorophenol	mg/kg	74	-	ND (0.19)	-	-	-	-	-
Acenaphthene	mg/kg	37000	-	ND (0.039)	-	-	-	-	-
Acenaphthylene	mg/kg	300000	-	ND (0.039)	-	-	-	-	-
Acetophenone	mg/kg	5	-	ND (0.19)	-	-	-	-	-
Anthracene	mg/kg	30000	-	ND (0.039)	-	-	-	-	-
Atrazine	mg/kg	2400	-	ND (0.077)	-	-	-	-	-
Benzo(a)anthracene	mg/kg	2	-	ND (0.039)	-	-	-	-	-
Benzo(a)pyrene	mg/kg	0.2	-	ND (0.039)	-	-	-	-	-
Benzo(b)fluoranthene	mg/kg	2	-	ND (0.039)	-	-	-	-	-
Benzo(g,h,i)perylene	mg/kg	30000	-	ND (0.039)	-	-	-	-	-
Benzo(k)fluoranthene	mg/kg	23	-	ND (0.039)	-	-	-	-	-
4-Bromophenyl phenyl ether	mg/kg	-	-	ND (0.077)	-	-	-	-	-
Butyl benzyl phthalate	mg/kg	14000	-	ND (0.077)	-	-	-	-	-
1,1'-Biphenyl	mg/kg	34000	-	ND (0.077)	-	-	-	-	-
Benzaldehyde	mg/kg	68000	-	ND (0.19)	-	-	-	-	-
2-Chloronaphthalene	mg/kg	-	-	ND (0.077)	-	-	-	-	-
4-Chloroaniline	mg/kg	-	-	ND (0.19)	-	-	-	-	-
Carbazole	mg/kg	96	-	ND (0.077)	-	-	-	-	-
Caprolactam	mg/kg	340000	-	ND (0.077)	-	-	-	-	-
Chrysene	mg/kg	230	-	ND (0.039)	-	-	-	-	-
bis(2-Chloroethoxy)methane	mg/kg	-	-	ND (0.077)	-	-	-	-	-
bis(2-Chloroethyl)ether	mg/kg	2	-	ND (0.077)	-	-	-	-	-
bis(2-Chloroisopropyl)ether	mg/kg	67	-	ND (0.077)	-	-	-	-	-
4-Chlorophenyl phenyl ether	mg/kg	-	-	ND (0.077)	-	-	-	-	-
2,4-Dinitrotoluene	mg/kg	3	-	ND (0.039)	-	-	-	-	-
2,6-Dinitrotoluene	mg/kg	3	-	ND (0.039)	-	-	-	-	-
3,3'-Dichlorobenzidine	mg/kg	4	-	ND (0.077)	-	-	-	-	-
1,4-Dioxane	mg/kg	-	-	ND (0.039)	-	-	-	-	-
Dibenzo(a,h)anthracene	mg/kg	0.2	-	ND (0.039)	-	-	-	-	-
Dibenzofuran	mg/kg	-	-	ND (0.077)	-	-	-	-	-
Di-n-butyl phthalate	mg/kg	68000	-	ND (0.077)	-	-	-	-	-
Di-n-octyl phthalate	mg/kg	27000	-	ND (0.077)	-	-	-	-	-
Diethyl phthalate	mg/kg	550000	-	ND (0.077)	-	-	-	-	-
Dimethyl phthalate	mg/kg	-	-	ND (0.077)	-	-	-	-	-
bis(2-Ethylhexyl)phthalate	mg/kg	140	-	ND (0.077)	-	-	-	-	-
Fluoranthene	mg/kg	24000	-	ND (0.039)	-	-	-	-	-
Fluorene	mg/kg	24000	-	ND (0.039)	-	-	-	-	-
Hexachlorobenzene	mg/kg	1	-	ND (0.077)	-	-	-	-	-
Hexachlorobutadiene	mg/kg	25	-	ND (0.039)	-	-	-	-	-
Hexachlorocyclopentadiene	mg/kg	110	-	ND (0.39)	-	-	-	-	-
Hexachloroethane	mg/kg	140	-	ND (0.19)	-	-	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	2	-	ND (0.039)	-	-	-	-	-
Isophorone	mg/kg	2000	-	ND (0.077)	-	-	-	-	-
2-Methylnaphthalene	mg/kg	2400	-	ND (0.077)	-	-	-	-	-
2-Nitroaniline	mg/kg	23000	-	ND (0.19)	-	-	-	-	-
3-Nitroaniline	mg/kg	-	-	ND (0.19)	-	-	-	-	-
4-Nitroaniline	mg/kg	-	-	ND (0.19)	-	-	-	-	-
Naphthalene	mg/kg	17	-	ND (0.039)	-	-	-	-	-
Nitrobenzene	mg/kg	340	-	ND (0.077)	-	-	-	-	-
N-Nitroso-di-n-propylamine	mg/kg	0.3	-	ND (0.077)	-	-	-	-	-
N-Nitrosodiphenylamine	mg/kg	390	-	ND (0.19)	-	-	-	-	-
Phenanthrene	mg/kg	300000	-	ND (0.039)	-	-	-	-	-
Pyrene	mg/kg	18000	-	ND (0.039)	-	-	-	-	-
1,2,4,5-Tetrachlorobenzene	mg/kg	-	-	ND (0.19)	-	-	-	-	-

Table 4-46  
Former Hess Terminal - 750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Sample Results at AOC 75 - Former Canning Plant

Client Sample ID:		NJ Non-Residential Direct Contact Soil	CPTF-SS-1	CPTF-SS-1	CPTF-SS-2	CPTF-SS-3	CPTF-SS-4	CPTF-SS-5	CPTF-SS-6
Lab Sample ID:			JB98804-1	JB98804-1R	JB98804-2	JB98804-3	JB98804-4	JB98804-5	JB98804-6
Date Sampled:			7/8/2015	7/8/2015	7/8/2015	7/8/2015	7/8/2015	7/8/2015	7/8/2015
Matrix:			Soil	Soil	Soil	Soil	Soil	Soil	Soil
Depth:			1.5-2.0 ft	1.5-2.0 ft	8.0-8.5 ft	12.5-13.0 ft	12.0-12.5 ft	0.5-1.0 ft	0.5-1.0 ft
GC/MS Semi-volatile TIC									
Total TIC, Semi-Volatile	mg/kg	-	-	30.31 J	-	-	-	-	-
Total Alkanes	mg/kg	-	-	0.67 J	-	-	-	-	-
GC Semi-volatiles (NJDEP EPH)									
EPH (C9-C28)	mg/kg	-	-	-	-	-	-	-	-
EPH (>C28-C40)	mg/kg	-	-	-	-	-	-	-	-
Total EPH (C9-C40)	mg/kg	-	-	-	-	-	-	-	-
C10-C12 Aromatics	mg/kg	-	ND (0.14)	-	ND (0.13)	ND (0.14)	ND (0.14)	ND (0.12)	ND (0.12)
C12-C16 Aromatics	mg/kg	-	ND (0.22)	-	ND (0.21)	ND (0.22)	ND (0.23)	40.4	ND (0.19)
C16-C21 Aromatics	mg/kg	-	122	-	ND (0.45)	ND (0.47)	ND (0.49)	70	ND (0.41)
C21-C36 Aromatics	mg/kg	-	1190	-	ND (0.55)	ND (0.58)	ND (0.60)	19.1	94
Total Aromatics	mg/kg	-	1320	-	ND (0.13)	ND (0.14)	ND (0.14)	129	94
C9-C12 Aliphatics	mg/kg	-	ND (0.13)	-	ND (0.12)	ND (0.13)	ND (0.13)	52.7	ND (0.11)
C12-C16 Aliphatics	mg/kg	-	57.4	-	ND (0.12)	ND (0.13)	ND (0.13)	215	ND (0.11)
C16-C21 Aliphatics	mg/kg	-	160	-	ND (0.22)	ND (0.23)	ND (0.24)	239	ND (0.20)
C21-C40 Aliphatics	mg/kg	-	1970	-	ND (1.2)	ND (1.3)	ND (1.4)	87	123
Total Aliphatics	mg/kg	-	2180	-	ND (0.12)	ND (0.13)	ND (0.13)	594	123
Total EPH	mg/kg	-	3500	-	ND (0.12)	ND (0.13)	ND (0.13)	723	217
GC Semi-volatiles (SW846 8082A)									
Aroclor 1016	mg/kg	1	-	ND (0.013)	-	-	-	-	-
Aroclor 1221	mg/kg	1	-	ND (0.023)	-	-	-	-	-
Aroclor 1232	mg/kg	1	-	ND (0.013)	-	-	-	-	-
Aroclor 1242	mg/kg	1	-	ND (0.018)	-	-	-	-	-
Aroclor 1248	mg/kg	1	-	ND (0.012)	-	-	-	-	-
Aroclor 1254	mg/kg	1	-	ND (0.018)	-	-	-	-	-
Aroclor 1260	mg/kg	1	-	ND (0.017)	-	-	-	-	-
Aroclor 1268	mg/kg	1	-	ND (0.012)	-	-	-	-	-
Aroclor 1262	mg/kg	1	-	ND (0.011)	-	-	-	-	-
Metals Analysis									
Aluminum	mg/kg	NA	-	11700	-	-	-	-	-
Antimony	mg/kg	450	-	<2.3	-	-	-	-	-
Arsenic	mg/kg	19	-	4.3	-	-	-	-	-
Barium	mg/kg	59000	-	23.1	-	-	-	-	-
Beryllium	mg/kg	140	-	0.69	-	-	-	-	-
Cadmium	mg/kg	78	-	<0.57	-	-	-	-	-
Calcium	mg/kg	-	-	656	-	-	-	-	-
Chromium	mg/kg	-	-	15.4	-	-	-	-	-
Chromium, Hexavalent	mg/kg	-	-	-	-	-	-	-	-
Cobalt	mg/kg	590	-	7.6	-	-	-	-	-
Copper	mg/kg	45000	-	6.1	-	-	-	-	-
Iron	mg/kg	-	-	13400	-	-	-	-	-
Lead	mg/kg	800	-	7.6	-	-	-	-	-
Magnesium	mg/kg	-	-	855	-	-	-	-	-
Manganese	mg/kg	5900	-	86.3	-	-	-	-	-
Mercury	mg/kg	65	-	<0.036	-	-	-	-	-
Nickel	mg/kg	23000	-	9.9	-	-	-	-	-
Potassium	mg/kg	-	-	<1100	-	-	-	-	-
Selenium	mg/kg	5700	-	<2.3	-	-	-	-	-
Silver	mg/kg	5700	-	<0.57	-	-	-	-	-
Sodium	mg/kg	-	-	<1100	-	-	-	-	-
Sulfur	mg/kg	-	-	-	-	-	-	-	-
Thallium	mg/kg	79	-	<1.1	-	-	-	-	-
Vanadium	mg/kg	1100	-	22.4	-	-	-	-	-
Zinc	mg/kg	110000	-	22.1	-	-	-	-	-
General Chemistry									
Solids, Percent	%	-	83.8	-	84.6	83.7	84.2	88.4	92.3

All results in mg/kg unless otherwise noted.

mg/kg	milligrams per kilogram
J	Estimated Value
NS	Not Sampled
ND	Not Detected
NA	Not Analyzed
( )	Method Detection Limit
B	Compound Found in Blank
**	Health based standard defaults to soil saturation limit
<sup>b</sup>	Result is from 2nd run
<sup>a</sup>	Result is from 2nd run
	Exceeds NJDEP Non-Residential Soil Remediation Standard

Table 4-1  
Hess Corporation - Former Port Reading Complex (HC-PR)  
750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Analytical Results at AOC-77 - Former Petroleum Solvents AST

Client Sample ID:		NJ Non-Residential Direct Contact Soil	PSTF-SS-1	PSTF-SS-1	PSTF-SS-1	PSTF-SS-2	PSTF-SS-3
Lab Sample ID:			JB98804-7	JB98804-7R	JB98804-7U	JB98804-8	JB98804-9
Date Sampled:			7/8/2015	7/8/2015	7/8/2015	7/8/2015	7/8/2015
Matrix:			Soil	Soil	Soil	Soil	Soil
Depth:			10.5-11.0 ft	10.5-11.0 ft	10.5-11.0 ft	6.5-7.0 ft	1.5-2.0 ft
GC/MS Volatiles (SW846 8260C)							
Acetone	mg/kg	NA	-	ND (1.3)	-	-	-
Benzene	mg/kg	5	-	ND (0.075)	-	-	-
Bromochloromethane	mg/kg	-	-	ND (0.17)	-	-	-
Bromodichloromethane	mg/kg	3	-	ND (0.088)	-	-	-
Bromoform	mg/kg	280	-	ND (0.13)	-	-	-
Bromomethane	mg/kg	59	-	ND (0.21)	-	-	-
2-Butanone (MEK)	mg/kg	44000	-	ND (1.1)	-	-	-
Carbon disulfide	mg/kg	110000	-	ND (0.13)	-	-	-
Carbon tetrachloride	mg/kg	2	-	ND (0.13)	-	-	-
Chlorobenzene	mg/kg	7400	-	3.97	-	-	-
Chloroethane	mg/kg	1100	-	ND (0.27)	-	-	-
Chloroform	mg/kg	2	-	ND (0.084)	-	-	-
Chloromethane	mg/kg	12	-	ND (0.15)	-	-	-
Cyclohexane	mg/kg	-	-	ND (0.18)	-	-	-
1,2-Dibromo-3-chloropropane	mg/kg	0.2	-	ND (0.31)	-	-	-
Dibromochloromethane	mg/kg	8	-	ND (0.12)	-	-	-
1,2-Dibromoethane	mg/kg	0.04	-	ND (0.074)	-	-	-
1,2-Dichlorobenzene	mg/kg	59000	-	190	-	-	-
1,3-Dichlorobenzene	mg/kg	59000	-	2.37	-	-	-
1,4-Dichlorobenzene	mg/kg	13	-	71.5	-	-	-
Dichlorodifluoromethane	mg/kg	230000	-	ND (0.20)	-	-	-
1,1-Dichloroethane	mg/kg	24	-	ND (0.080)	-	-	-
1,2-Dichloroethane	mg/kg	3	-	ND (0.076)	-	-	-
1,1-Dichloroethene	mg/kg	150	-	ND (0.33)	-	-	-
cis-1,2-Dichloroethene	mg/kg	560	-	23.1	-	-	-
trans-1,2-Dichloroethene	mg/kg	720	-	ND (0.34)	-	-	-
1,2-Dichloropropane	mg/kg	5	-	ND (0.13)	-	-	-
cis-1,3-Dichloropropene	mg/kg	7	-	ND (0.067)	-	-	-
trans-1,3-Dichloropropene	mg/kg	7	-	ND (0.10)	-	-	-
Ethylbenzene	mg/kg	110000	-	59.8	-	-	-
Freon 113	mg/kg	-	-	ND (0.25)	-	-	-
2-Hexanone	mg/kg	-	-	ND (0.76)	-	-	-
Isopropylbenzene	mg/kg	-	-	3.4	-	-	-
Methyl Acetate	mg/kg	NA	-	ND (0.49)	-	-	-
Methylcyclohexane	mg/kg	-	-	ND (0.13)	-	-	-
Methyl Tert Butyl Ether	mg/kg	320	-	ND (0.086)	-	-	-
4-Methyl-2-pentanone(MIBK)	mg/kg	-	-	ND (0.26)	-	-	-
Methylene chloride	mg/kg	97	-	ND (0.55)	-	-	-
Styrene	mg/kg	260	-	ND (0.10)	-	-	-
Tert Butyl Alcohol	mg/kg	11000	-	ND (1.5)	-	-	-
1,1,2,2-Tetrachloroethane	mg/kg	3	-	ND (0.099)	-	-	-
Tetrachloroethene	mg/kg	5	-	1590	-	-	-
Toluene	mg/kg	91000	-	2.22	-	-	-
1,2,3-Trichlorobenzene	mg/kg	-	-	30.4	-	-	-
1,2,4-Trichlorobenzene	mg/kg	820	-	250	-	-	-
1,1,1-Trichloroethane	mg/kg	4200	-	0.218 J	-	-	-
1,1,2-Trichloroethane	mg/kg	6	-	ND (0.083)	-	-	-
Trichloroethene	mg/kg	20	-	10.2	-	-	-
Trichlorofluoromethane	mg/kg	340000	-	ND (0.14)	-	-	-
Vinyl chloride	mg/kg	2	-	ND (0.11)	-	-	-
m,p-Xylene	mg/kg	170000	-	200	-	-	-
o-Xylene	mg/kg	170000	-	78.3	-	-	-
Xylene (total)	mg/kg	170000	-	279	-	-	-
GC/MS Volatile TIC							
Total TIC, Volatile	mg/kg	-	-	8.8 J	-	-	-
Total Alkanes	mg/kg	-	-	11.1 J	-	-	-

Table 4-1  
Hess Corporation - Former Port Reading Complex (HC-PR)  
750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Analytical Results at AOC-77 – Former Petroleum Solvents AST

Client Sample ID:		NJ Non-Residential Direct Contact Soil	PSTF-SS-1	PSTF-SS-1	PSTF-SS-1	PSTF-SS-2	PSTF-SS-3
Lab Sample ID:			JB98804-7	JB98804-7R	JB98804-7U	JB98804-8	JB98804-9
Date Sampled:			7/8/2015	7/8/2015	7/8/2015	7/8/2015	7/8/2015
Matrix:			Soil	Soil	Soil	Soil	Soil
Depth:			10.5-11.0 ft	10.5-11.0 ft	10.5-11.0 ft	6.5-7.0 ft	1.5-2.0 ft
GC/MS Semi-volatiles (SW846 8270D)							
2-Chlorophenol	mg/kg	2200	-	ND (0.077)	-	-	-
4-Chloro-3-methyl phenol	mg/kg	-	-	ND (0.19)	-	-	-
2,4-Dichlorophenol	mg/kg	2100	-	ND (0.19)	-	-	-
2,4-Dimethylphenol	mg/kg	14000	-	ND (0.19)	-	-	-
2,4-Dinitrophenol	mg/kg	1400	-	ND (0.19)	-	-	-
4,6-Dinitro-o-cresol	mg/kg	68	-	ND (0.19)	-	-	-
2-Methylphenol	mg/kg	3400	-	ND (0.077)	-	-	-
3&4-Methylphenol	mg/kg	-	-	ND (0.077)	-	-	-
2-Nitrophenol	mg/kg	-	-	ND (0.19)	-	-	-
4-Nitrophenol	mg/kg	-	-	ND (0.38)	-	-	-
Pentachlorophenol	mg/kg	10	-	ND (0.19)	-	-	-
Phenol	mg/kg	210000	-	ND (0.077)	-	-	-
2,3,4,6-Tetrachlorophenol	mg/kg	-	-	ND (0.19)	-	-	-
2,4,5-Trichlorophenol	mg/kg	68000	-	ND (0.19)	-	-	-
2,4,6-Trichlorophenol	mg/kg	74	-	ND (0.19)	-	-	-
Acenaphthene	mg/kg	37000	-	ND (0.038)	-	-	-
Acenaphthylene	mg/kg	300000	-	ND (0.038)	-	-	-
Acetophenone	mg/kg	5	-	ND (0.19)	-	-	-
Anthracene	mg/kg	30000	-	ND (0.038)	-	-	-
Atrazine	mg/kg	2400	-	ND (0.077)	-	-	-
Benzo(a)anthracene	mg/kg	2	-	0.0181 J	-	-	-
Benzo(a)pyrene	mg/kg	0.2	-	ND (0.038)	-	-	-
Benzo(b)fluoranthene	mg/kg	2	-	0.0189 J	-	-	-
Benzo(g,h,i)perylene	mg/kg	30000	-	ND (0.038)	-	-	-
Benzo(k)fluoranthene	mg/kg	23	-	ND (0.038)	-	-	-
4-Bromophenyl phenyl ether	mg/kg	-	-	ND (0.077)	-	-	-
Butyl benzyl phthalate	mg/kg	14000	-	ND (0.077)	-	-	-
1,1'-Biphenyl	mg/kg	34000	-	0.0973	-	-	-
Benzaldehyde	mg/kg	68000	-	ND (0.19)	-	-	-
2-Chloronaphthalene	mg/kg	-	-	ND (0.077)	-	-	-
4-Chloroaniline	mg/kg	-	-	ND (0.19)	-	-	-
Carbazole	mg/kg	96	-	ND (0.077)	-	-	-
Caprolactam	mg/kg	340000	-	ND (0.077)	-	-	-
Chrysene	mg/kg	230	-	0.0427	-	-	-
bis(2-Chloroethoxy)methane	mg/kg	-	-	ND (0.077)	-	-	-
bis(2-Chloroethyl)ether	mg/kg	2	-	ND (0.077)	-	-	-
bis(2-Chloroisopropyl)ether	mg/kg	67	-	ND (0.077)	-	-	-
4-Chlorophenyl phenyl ether	mg/kg	-	-	ND (0.077)	-	-	-
2,4-Dinitrotoluene	mg/kg	3	-	ND (0.038)	-	-	-
2,6-Dinitrotoluene	mg/kg	3	-	ND (0.038)	-	-	-
3,3'-Dichlorobenzidine	mg/kg	4	-	ND (0.077)	-	-	-
1,4-Dioxane	mg/kg	-	-	ND (0.038)	-	-	-
Dibenzo(a,h)anthracene	mg/kg	0.2	-	ND (0.038)	-	-	-
Dibenzofuran	mg/kg	-	-	0.0653 J	-	-	-
Di-n-butyl phthalate	mg/kg	68000	-	ND (0.077)	-	-	-
Di-n-octyl phthalate	mg/kg	27000	-	ND (0.077)	-	-	-
Diethyl phthalate	mg/kg	550000	-	ND (0.077)	-	-	-
Dimethyl phthalate	mg/kg	-	-	ND (0.077)	-	-	-
bis(2-Ethylhexyl)phthalate	mg/kg	140	-	0.0765 J	-	-	-
Fluoranthene	mg/kg	24000	-	0.0513	-	-	-
Fluorene	mg/kg	24000	-	0.0651	-	-	-
Hexachlorobenzene	mg/kg	1	-	ND (0.077)	-	-	-
Hexachlorobutadiene	mg/kg	25	-	ND (0.038)	-	-	-
Hexachlorocyclopentadiene	mg/kg	110	-	ND (0.38)	-	-	-
Hexachloroethane	mg/kg	140	-	ND (0.19)	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	2	-	ND (0.038)	-	-	-
Isophorone	mg/kg	2000	-	ND (0.077)	-	-	-
2-Methylnaphthalene	mg/kg	2400	-	1.26	-	-	-
2-Nitroaniline	mg/kg	23000	-	ND (0.19)	-	-	-
3-Nitroaniline	mg/kg	-	-	ND (0.19)	-	-	-
4-Nitroaniline	mg/kg	-	-	ND (0.19)	-	-	-
Naphthalene	mg/kg	17	-	0.185	-	-	-
Nitrobenzene	mg/kg	340	-	ND (0.077)	-	-	-
N-Nitroso-di-n-propylamine	mg/kg	0.3	-	ND (0.077)	-	-	-
N-Nitrosodiphenylamine	mg/kg	390	-	ND (0.19)	-	-	-
Phenanthrene	mg/kg	300000	-	0.218	-	-	-
Pyrene	mg/kg	18000	-	0.0553	-	-	-
1,2,4,5-Tetrachlorobenzene	mg/kg	-	-	7.32	-	-	-



Table 4-1  
Hess Corporation - Former Port Reading Complex (HC-PR)  
750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Analytical Results at AOC-77 – Former Petroleum Solvents AST

Client Sample ID:		NJ Non-Residential Direct Contact Soil	PSTF-SS-1	PSTF-SS-1	PSTF-SS-1	PSTF-SS-2	PSTF-SS-3
Lab Sample ID:			JB98804-7	JB98804-7R	JB98804-7U	JB98804-8	JB98804-9
Date Sampled:			7/8/2015	7/8/2015	7/8/2015	7/8/2015	7/8/2015
Matrix:			Soil	Soil	Soil	Soil	Soil
Depth:			10.5-11.0 ft	10.5-11.0 ft	10.5-11.0 ft	6.5-7.0 ft	1.5-2.0 ft
GC/MS Semi-volatile TIC							
Total TIC, Semi-Volatile	mg/kg	-	-	26.6 J	-	-	-
GC Semi-volatiles (NJDEP EPH)							
EPH (C9-C28)	mg/kg	-	-	-	-	-	-
EPH (>C28-C40)	mg/kg	-	-	-	-	-	-
Total EPH (C9-C40)	mg/kg	-	-	-	-	-	-
C10-C12 Aromatics	mg/kg	-	20.4	-	-	ND (0.14)	36.3
C12-C16 Aromatics	mg/kg	-	16.7	-	-	ND (0.22)	ND (0.22)
C16-C21 Aromatics	mg/kg	-	54.4	-	-	ND (0.47)	ND (0.47)
C21-C36 Aromatics	mg/kg	-	48.3	-	-	ND (0.57)	ND (0.57)
Total Aromatics	mg/kg	-	140	-	-	ND (0.14)	36.3
C9-C12 Aliphatics	mg/kg	-	70.1	-	-	ND (0.13)	323
C12-C16 Aliphatics	mg/kg	-	90.8	-	-	ND (0.13)	ND (0.13)
C16-C21 Aliphatics	mg/kg	-	109	-	-	ND (0.23)	ND (0.23)
C21-C40 Aliphatics	mg/kg	-	92.8	-	-	ND (1.3)	ND (1.3)
Total Aliphatics	mg/kg	-	362	-	-	ND (0.13)	323
Total EPH	mg/kg	-	502	-	-	ND (0.13)	359
GC Semi-volatiles (SW846 8082A)							
Aroclor 1016	mg/kg	1	-	ND (0.013)	-	-	-
Aroclor 1221	mg/kg	1	-	ND (0.023)	-	-	-
Aroclor 1232	mg/kg	1	-	ND (0.013)	-	-	-
Aroclor 1242	mg/kg	1	-	ND (0.018)	-	-	-
Aroclor 1248	mg/kg	1	-	ND (0.012)	-	-	-
Aroclor 1254	mg/kg	1	-	ND (0.018)	-	-	-
Aroclor 1260	mg/kg	1	-	ND (0.017)	-	-	-
Aroclor 1268	mg/kg	1	-	ND (0.012)	-	-	-
Aroclor 1262	mg/kg	1	-	ND (0.011)	-	-	-

Client Sample ID:		NJ Non-Residential Direct Contact Soil	PSTF-SS-1	PSTF-SS-1	PSTF-SS-1	PSTF-SS-2	PSTF-SS-3
Lab Sample ID:			JB98804-7	JB98804-7R	JB98804-7U	JB98804-8	JB98804-9
Date Sampled:			7/8/2015	7/8/2015	7/8/2015	7/8/2015	7/8/2015
Matrix:			Soil	Soil	Soil	Soil	Soil
Depth:			10.5-11.0 ft	10.5-11.0 ft	10.5-11.0 ft	6.5-7.0 ft	1.5-2.0 ft
Metals Analysis							
Aluminum	mg/kg	NA	-	12700	-	-	-
Antimony	mg/kg	450	-	<2.5	-	-	-
Arsenic	mg/kg	19	-	6.7	-	-	-
Barium	mg/kg	59000	-	72.9	-	-	-
Beryllium	mg/kg	140	-	1	-	-	-
Cadmium	mg/kg	78	-	<0.62	-	-	-
Calcium	mg/kg	-	-	1650	-	-	-
Chromium	mg/kg	-	-	26.5	-	-	-
Chromium, Hexavalent	mg/kg	-	-	-	<0.48	-	-
Cobalt	mg/kg	590	-	14.2	-	-	-
Copper	mg/kg	45000	-	49.2	-	-	-
Iron	mg/kg	-	-	27800	-	-	-
Lead	mg/kg	800	-	12.6	-	-	-
Magnesium	mg/kg	-	-	6070	-	-	-
Manganese	mg/kg	5900	-	392	-	-	-
Mercury	mg/kg	65	-	<0.035	-	-	-
Nickel	mg/kg	23000	-	30.3	-	-	-
Potassium	mg/kg	-	-	2620	-	-	-
Selenium	mg/kg	5700	-	<2.5	-	-	-
Silver	mg/kg	5700	-	<0.62	-	-	-
Sodium	mg/kg	-	-	<1200	-	-	-
Sulfur	mg/kg	-	-	-	-	-	-
Thallium	mg/kg	79	-	<1.2	-	-	-
Vanadium	mg/kg	1100	-	31	-	-	-
Zinc	mg/kg	110000	-	69.1	-	-	-
General Chemistry							
Redox Potential Vs H2	mv	-	-	-	524	-	-
Solids, Percent	%	-	83.7	-	-	86.3	86.1
pH	su	-	-	-	6.21	-	-
All results in mg/kg unless otherwise noted. mg/kg                      milligrams per kilogram J                              Estimated Value NS                            Not Sampled ND                            Not Detected NA                            Not Analyzed ( )                            Method Detection Limit B                              Compound Found in Blank **                            Health based standard defaults to soil saturation limit b                              Result is from 2nd run a                              Result is from 2nd run Exceeds NJDEP Non-Residential Soil Remediation Standard							

### Summary of Soil Analytical Results at AOC 80 - Former Crude Topping Unit

Client Sample ID:	NJ Non-Residential Direct Contact Soil	CTU-SS-1	CTU-SS-1	CTU-SS-2	CTU-SS-2	CTU-SS-2	CTU-SS-2	CTU-SS-2	CTU-SS-3	CTU-SS-3	CTU-SS-4	CTU-SS-5	CTU-SS-5	CTU-SS-6
Lab Sample ID:		JB99546-1	JB99546-1T	JB99428-1	JB99428-1R	JB99428-1T	JB99428-1TU	JB99428-3	JB99428-3R	JB99429-6	JB99429-4	JB99429-4T	JB99428-2	
Date Sampled:		7/20/2015	7/20/2015	7/16/2015	7/16/2015	7/16/2015	7/16/2015	7/17/2015	7/17/2015	7/16/2015	7/16/2015	7/16/2015	7/17/2015	
Matrix:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Depth:		6.5-7.0 ft	6.5-7.0 ft	3.0-3.5 ft	3.0-3.5 ft	3.0-3.5 ft	3.0-3.5 ft	3.0-3.5 ft	3.0-3.5 ft	3.0-3.5 ft	4.5-50 ft	3.5-4.0 ft	3.5-4.0 ft	3.5-4.0 ft
GC/MS Volatiles (SW846 8260C)														
Acetone	mg/kg	NA	ND (0.0098)	-	ND (0.49)	-	-	-	ND (0.55)	-	0.0068 J	0.0897	-	ND (1.1)
Benzene	mg/kg	5	ND (0.0049)	-	ND (0.025)	-	-	-	ND (0.027)	-	ND (0.0047)	0.0012	-	ND (0.055)
Bromochloromethane	mg/kg	-	ND (0.0049)	-	ND (0.25)	-	-	-	ND (0.27)	-	ND (0.0047)	ND (0.0049)	-	ND (0.55)
Bromodichloromethane	mg/kg	3	ND (0.0020)	-	ND (0.099)	-	-	-	ND (0.11)	-	ND (0.0019)	ND (0.0019)	-	ND (0.22)
Bromofrom	mg/kg	280	ND (0.0049)	-	ND (0.25)	-	-	-	ND (0.27)	-	ND (0.0047)	ND (0.0049)	-	ND (0.55)
Bromomethane	mg/kg	59	ND (0.0049)	-	ND (0.25)	-	-	-	ND (0.27)	-	ND (0.0047)	ND (0.0049)	-	ND (0.55)
2-Butanone (MEK)	mg/kg	44000	ND (0.0098)	-	ND (0.49)	-	-	-	ND (0.55)	-	ND (0.0094)	0.0093 J	-	ND (1.1)
Carbon disulfide	mg/kg	110000	ND (0.0020)	-	ND (0.099)	-	-	-	ND (0.11)	-	0.005	0.0011 J	-	ND (0.22)
Carbon tetrachloride	mg/kg	2	ND (0.0020)	-	ND (0.099)	-	-	-	ND (0.11)	-	ND (0.0019)	ND (0.0019)	-	ND (0.22)
Chlorobenzene	mg/kg	7400	0.00097 J	-	1.51	-	-	-	0.134	-	0.0011 J	ND (0.0019)	-	ND (0.22)
Chloroethane	mg/kg	1100	ND (0.0049)	-	ND (0.25)	-	-	-	ND (0.27)	-	ND (0.0047)	ND (0.0049)	-	ND (0.55)
Chloroform	mg/kg	2	ND (0.0020)	-	ND (0.099)	-	-	-	ND (0.11)	-	ND (0.0019)	ND (0.0019)	-	ND (0.22)
Chloromethane	mg/kg	12	ND (0.0049)	-	ND (0.25)	-	-	-	ND (0.27)	-	ND (0.0047)	ND (0.0049)	-	ND (0.55)
Chlorohexane	mg/kg	-	ND (0.0020)	-	0.141	-	-	-	ND (0.11)	-	ND (0.0019)	0.00044 J	-	0.129 J
1,2-Dibromo-3-chloropropane	mg/kg	0.2	ND (0.0020)	-	ND (0.099)	-	-	-	ND (0.11)	-	ND (0.0019)	ND (0.0019)	-	ND (0.22)
Dibromochloromethane	mg/kg	8	ND (0.0020)	-	ND (0.099)	-	-	-	ND (0.11)	-	ND (0.0019)	ND (0.0019)	-	ND (0.22)
1,2-Dibromomethane	mg/kg	0.04	ND (0.00098)	-	ND (0.049)	-	-	-	ND (0.055)	-	ND (0.00094)	ND (0.00097)	-	ND (0.11)
1,2-Dichlorobenzene	mg/kg	59000	ND (0.0098)	-	0.3	-	-	-	0.0299 J	-	ND (0.00094)	ND (0.00097)	-	ND (0.11)
1,3-Dichlorobenzene	mg/kg	59000	ND (0.0098)	-	0.441	-	-	-	0.0522 J	-	ND (0.00094)	ND (0.00097)	-	ND (0.11)
1,4-Dichlorobenzene	mg/kg	13	ND (0.0098)	-	0.976	-	-	-	0.0881	-	ND (0.00094)	ND (0.00097)	-	ND (0.11)
Dichlorodifluoromethane	mg/kg	230000	ND (0.0049)	-	ND (0.25)	-	-	-	ND (0.27)	-	ND (0.0047)	ND (0.0049)	-	ND (0.55)
1,1-Dichloroethane	mg/kg	24	ND (0.0098)	-	ND (0.049)	-	-	-	ND (0.055)	-	ND (0.00094)	ND (0.00097)	-	ND (0.11)
1,2-Dichloroethane	mg/kg	3	ND (0.00098)	-	ND (0.049)	-	-	-	ND (0.055)	-	ND (0.00094)	ND (0.00097)	-	ND (0.11)
1,1-Dichloroethene	mg/kg	150	ND (0.00098)	-	ND (0.049)	-	-	-	ND (0.055)	-	ND (0.00094)	ND (0.00097)	-	ND (0.11)
cis-1,2-Dichloroethene	mg/kg	560	ND (0.00098)	-	ND (0.049)	-	-	-	ND (0.055)	-	ND (0.00094)	ND (0.00097)	-	ND (0.11)
trans-1,2-Dichloroethene	mg/kg	720	ND (0.00098)	-	ND (0.049)	-	-	-	ND (0.055)	-	ND (0.00094)	ND (0.00097)	-	ND (0.11)
1,2-Dichloropropane	mg/kg	5	ND (0.0020)	-	ND (0.099)	-	-	-	ND (0.11)	-	ND (0.0019)	ND (0.0019)	-	ND (0.22)
cis-1,3-Dichloropropene	mg/kg	7	ND (0.0020)	-	ND (0.099)	-	-	-	ND (0.11)	-	ND (0.0019)	ND (0.0019)	-	ND (0.22)
trans-1,3-Dichloropropene	mg/kg	7	ND (0.0020)	-	ND (0.099)	-	-	-	ND (0.11)	-	ND (0.0019)	ND (0.0019)	-	ND (0.22)
Ethylbenzene	mg/kg	110000	ND (0.00098)	-	ND (0.049)	-	-	-	ND (0.055)	-	ND (0.00094)	0.0036	-	0.65
Hept-1,3	mg/kg	-	ND (0.0049)	-	ND (0.25)	-	-	-	ND (0.27)	-	ND (0.0047)	ND (0.0049)	-	ND (0.55)
2-Hexanone	mg/kg	-	ND (0.0049)	-	ND (0.25)	-	-	-	ND (0.27)	-	ND (0.0047)	ND (0.0049)	-	ND (0.55)
Isopropylbenzene	mg/kg	-	ND (0.0020)	-	1.24	-	-	-	0.0884 J	-	ND (0.0019)	0.00038 J	-	0.465
Methyl Acetate	mg/kg	NA	ND (0.0049)	-	ND (0.25)	-	-	-	ND (0.27)	-	ND (0.0047)	ND (0.0049)	-	ND (0.55)
Methylcyclohexane	mg/kg	-	ND (0.0020)	-	20.8	-	-	-	ND (0.11)	-	ND (0.0019)	0.0028	-	1.79
Methyl Tert Butyl Ether	mg/kg	320	0.001	-	ND (0.049)	-	-	-	ND (0.055)	-	ND (0.00094)	ND (0.00097)	-	ND (0.11)
4-Methyl-2-pentanone(MIBK)	mg/kg	-	ND (0.0049)	-	ND (0.049)	-	-	-	ND (0.27)	-	ND (0.0047)	ND (0.0049)	-	ND (0.55)
Methylene chloride	mg/kg	97	ND (0.0049)	-	ND (0.25)	-	-	-	ND (0.27)	-	ND (0.0047)	ND (0.0049)	-	ND (0.55)
Styrene	mg/kg	260	ND (0.0020)	-	ND (0.099)	-	-	-	ND (0.11)	-	ND (0.0019)	ND (0.0019)	-	ND (0.22)
1,1,2,2-Tetrachloroethane	mg/kg	3	ND (0.0020)	-	ND (0.099)	-	-	-	ND (0.11)	-	ND (0.0019)	ND (0.0019)	-	ND (0.22)
Tetrachloroethene	mg/kg	5	ND (0.0020)	-	ND (0.099)	-	-	-	ND (0.11)	-	ND (0.0019)	ND (0.0019)	-	ND (0.22)
Toluene	mg/kg	91000	0.0028	-	ND (0.049)	-	-	-	ND (0.055)	-	ND (0.00094)	0.0033	-	ND (0.11)
1,2,3-Trichlorobenzene	mg/kg	-	ND (0.0049)	-	ND (0.25)	-	-	-	ND (0.27)	-	ND (0.0047)	ND (0.0049)	-	ND (0.55)
1,2,4-Trichlorobenzene	mg/kg	820	ND (0.0049)	-	ND (0.25)	-	-	-	ND (0.27)	-	ND (0.0047)	ND (0.0049)	-	ND (0.55)
1,1,1-Trichloroethane	mg/kg	4200	ND (0.0020)	-	ND (0.099)	-	-	-	ND (0.11)	-	ND (0.0019)	ND (0.0019)	-	ND (0.22)
1,1,2-Trichloroethane	mg/kg	6	ND (0.0020)	-	ND (0.099)	-	-	-	ND (0.11)	-	ND (0.0019)	ND (0.0019)	-	ND (0.22)
Trichloroethene	mg/kg	20	ND (0.00098)	-	ND (0.049)	-	-	-	ND (0.055)	-	ND (0.00094)	ND (0.00097)	-	ND (0.11)
Trichlorofluoromethane	mg/kg	340000	ND (0.0049)	-	ND (0.25)	-	-	-	ND (0.27)	-	ND (0.0047)	ND (0.0049)	-	ND (0.55)
Vinyl chloride	mg/kg	2	ND (0.0020)	-	ND (0.099)	-	-	-	ND (0.11)	-	ND (0.0019)	ND (0.0019)	-	ND (0.22)
m,p-Xylene	mg/kg	170000	ND (0.00098)	-	ND (0.049)	-	-	-	ND (0.055)	-	ND (0.00094)	0.0148	-	3.61
p-Xylene	mg/kg	170000	ND (0.00098)	-	0.0244 J	-	-	-	ND (0.055)	-	ND (0.00094)	0.0052	-	0.0983 J
Xylene (total)	mg/kg	170000	ND (0.00098)	-	0.0244 J	-	-	-	ND (0.055)	-	ND (0.00094)	0.02	-	3.71
GC/MS Volatile TIC														
Total TIC, Volatile	mg/kg	-	0	-	390 J	-	-	-	152.3 J	-	0	0.1705 J	-	80.4 J
Total Alkanes	mg/kg	-	0	-	0	-	-	-	27 J	-	0	0	-	69.7 J
Total Alkanes	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	-

Table 4-1  
Hess Corporation - Former Port Reading Complex (HC-PR)  
750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Analytical Results at AOC 80 - Former Crude Topping Unit

Client Sample ID:		NJ Non-Residential Direct Contact Soil	CTU-SS-1	CTU-SS-1	CTU-SS-2	CTU-SS-2	CTU-SS-2	CTU-SS-2	CTU-SS-2	CTU-SS-3	CTU-SS-3	CTU-SS-4	CTU-SS-5	CTU-SS-5	CTU-SS-6
Lab Sample ID:			JB99546-1	JB99546-1T	JB99428-1	JB99428-1R	JB99428-1T	JB99428-1TU	JB99428-3	JB99428-3R	JB99429-6	JB99429-4	JB99429-4T	JB99428-2	
Date Sampled:			7/20/2015	7/20/2015	7/16/2015	7/16/2015	7/16/2015	7/16/2015	7/17/2015	7/17/2015	7/16/2015	7/16/2015	7/16/2015	7/17/2015	
Matrix:			Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	
Depth:			6.5-7.0 ft	6.5-7.0 ft	3.0-3.5 ft	3.0-3.5 ft	3.0-3.5 ft	3.0-3.5 ft	3.0-3.5 ft	3.0-3.5 ft	3.0-3.5 ft	4.5-50 ft	3.5-4.0 ft	3.5-4.0 ft	3.5-4.0 ft
GC/MS Semi-volatiles (SW846 8270D)															
2-Chlorophenol	mg/kg	2200	ND (0.072)	-	ND (0.071)	-	-	-	-	ND (0.14)	-	ND (0.074)	ND (0.078)	-	ND (0.069)
4-Chloro-3-methyl phenol	mg/kg	-	ND (0.18)	-	ND (0.18)	-	-	-	-	ND (0.36)	-	ND (0.19)	ND (0.19)	-	ND (0.17)
2,4-Dichlorophenol	mg/kg	2100	ND (0.18)	-	ND (0.18)	-	-	-	-	ND (0.36)	-	ND (0.19)	ND (0.19)	-	ND (0.17)
2,4-Dimethylphenol	mg/kg	14000	ND (0.18)	-	ND (0.18)	-	-	-	-	ND (0.36)	-	ND (0.19)	ND (0.19)	-	ND (0.17)
2,4-Dinitrophenol	mg/kg	1400	ND (0.18)	-	ND (0.18)	-	-	-	-	ND (0.36)	-	ND (0.19)	ND (0.19)	-	ND (0.17)
4,6-Dinitro-o-cresol	mg/kg	68	ND (0.18)	-	ND (0.18)	-	-	-	-	ND (0.36)	-	ND (0.19)	ND (0.19)	-	ND (0.17)
2-Methylphenol	mg/kg	3400	ND (0.072)	-	ND (0.071)	-	-	-	-	ND (0.14)	-	ND (0.074)	ND (0.078)	-	ND (0.069)
3,4-Methylphenol	mg/kg	-	ND (0.072)	-	ND (0.071)	-	-	-	-	ND (0.14)	-	ND (0.074)	ND (0.078)	-	ND (0.069)
2-Nitrophenol	mg/kg	-	ND (0.18)	-	ND (0.18)	-	-	-	-	ND (0.36)	-	ND (0.19)	ND (0.19)	-	ND (0.17)
4-Nitrophenol	mg/kg	-	ND (0.36)	-	ND (0.36)	-	-	-	-	ND (0.72)	-	ND (0.37)	ND (0.39)	-	ND (0.34)
Pentachlorophenol	mg/kg	10	ND (0.18)	-	ND (0.18)	-	-	-	-	ND (0.36)	-	ND (0.19)	ND (0.19)	-	ND (0.17)
Phenol	mg/kg	210000	ND (0.072)	-	ND (0.071)	-	-	-	-	ND (0.14)	-	ND (0.074)	ND (0.078)	-	ND (0.069)
2,3,4,6-Tetrachlorophenol	mg/kg	-	ND (0.18)	-	ND (0.18)	-	-	-	-	ND (0.36)	-	ND (0.19)	ND (0.19)	-	ND (0.17)
2,4,5-Trichlorophenol	mg/kg	68000	ND (0.18)	-	ND (0.18)	-	-	-	-	ND (0.36)	-	ND (0.19)	ND (0.19)	-	ND (0.17)
2,4,6-Trichlorophenol	mg/kg	74	ND (0.18)	-	ND (0.18)	-	-	-	-	ND (0.36)	-	ND (0.19)	ND (0.19)	-	ND (0.17)
Acenaphthene	mg/kg	37000	ND (0.036)	-	1.01	-	-	-	-	0.252	-	ND (0.037)	ND (0.039)	-	0.0704
Acenaphthylene	mg/kg	300000	ND (0.036)	-	ND (0.036)	-	-	-	-	ND (0.072)	-	ND (0.037)	ND (0.039)	-	ND (0.034)
Acetophenone	mg/kg	5	ND (0.18)	-	ND (0.18)	-	-	-	-	ND (0.36)	-	ND (0.19)	ND (0.19)	-	ND (0.17)
Anthracene	mg/kg	30000	ND (0.036)	-	ND (0.036)	-	-	-	-	ND (0.072)	-	ND (0.037)	ND (0.039)	-	0.0568
Atrazine	mg/kg	2400	ND (0.072)	-	ND (0.071)	-	-	-	-	ND (0.14)	-	ND (0.074)	ND (0.078)	-	ND (0.069)
Benzo(a)anthracene	mg/kg	2	ND (0.036)	-	0.0293 J	-	-	-	-	ND (0.072)	-	ND (0.037)	ND (0.039)	-	0.0532
Benzo(a)pyrene	mg/kg	0.2	ND (0.036)	-	ND (0.036)	-	-	-	-	ND (0.072)	-	ND (0.037)	ND (0.039)	-	0.0258 J
Benzo(b)fluoranthene	mg/kg	2	ND (0.036)	-	0.0157 J	-	-	-	-	ND (0.072)	-	ND (0.037)	ND (0.039)	-	0.0157 J
Benzo(a,h)pyrene	mg/kg	30000	ND (0.036)	-	ND (0.036)	-	-	-	-	ND (0.072)	-	ND (0.037)	ND (0.039)	-	0.0143 J
Benzo(k)fluoranthene	mg/kg	23	ND (0.036)	-	ND (0.036)	-	-	-	-	ND (0.072)	-	ND (0.037)	ND (0.039)	-	ND (0.034)
4-Bromophenyl phenyl ether	mg/kg	-	ND (0.072)	-	ND (0.071)	-	-	-	-	ND (0.14)	-	ND (0.074)	ND (0.078)	-	ND (0.069)
Butyl benzyl phthalate	mg/kg	14000	ND (0.072)	-	ND (0.071)	-	-	-	-	ND (0.14)	-	ND (0.074)	ND (0.078)	-	ND (0.069)
1,1'-Biphenyl	mg/kg	34000	ND (0.072)	-	ND (0.071)	-	-	-	-	ND (0.14)	-	ND (0.074)	ND (0.078)	-	0.0338 J
Benzaldehyde	mg/kg	68000	ND (0.18)	-	ND (0.18)	-	-	-	-	ND (0.36)	-	ND (0.19)	ND (0.19)	-	ND (0.17)
2-Chloronaphthalene	mg/kg	-	ND (0.072)	-	ND (0.071)	-	-	-	-	ND (0.14)	-	ND (0.074)	ND (0.078)	-	ND (0.069)
4-Chloroaniline	mg/kg	-	ND (0.18)	-	ND (0.18)	-	-	-	-	ND (0.36)	-	ND (0.19)	ND (0.19)	-	ND (0.17)
Carbazole	mg/kg	96	ND (0.072)	-	ND (0.071)	-	-	-	-	ND (0.14)	-	ND (0.074)	ND (0.078)	-	ND (0.069)
Caprolactam	mg/kg	340000	ND (0.072)	-	ND (0.071)	-	-	-	-	ND (0.14)	-	ND (0.074)	ND (0.078)	-	ND (0.069)
Chrysene	mg/kg	230	ND (0.036)	-	0.0653	-	-	-	-	ND (0.072)	-	ND (0.037)	ND (0.039)	-	0.113
bis(2-Chloroethoxy)methane	mg/kg	-	ND (0.072)	-	ND (0.071)	-	-	-	-	ND (0.14)	-	ND (0.074)	ND (0.078)	-	ND (0.069)
bis(2-Chloroethyl)ether	mg/kg	2	ND (0.072)	-	ND (0.071)	-	-	-	-	ND (0.14)	-	ND (0.074)	ND (0.078)	-	ND (0.069)
bis(2-Chloroisopropyl)ether	mg/kg	67	ND (0.072)	-	ND (0.071)	-	-	-	-	ND (0.14)	-	ND (0.074)	ND (0.078)	-	ND (0.069)
4-Chlorophenyl phenyl ether	mg/kg	-	ND (0.072)	-	ND (0.071)	-	-	-	-	ND (0.14)	-	ND (0.074)	ND (0.078)	-	ND (0.069)
2,4-Dinitrotoluene	mg/kg	3	ND (0.036)	-	ND (0.036)	-	-	-	-	ND (0.072)	-	ND (0.037)	ND (0.039)	-	ND (0.034)
2,6-Dinitrotoluene	mg/kg	3	ND (0.036)	-	ND (0.036)	-	-	-	-	ND (0.072)	-	ND (0.037)	ND (0.039)	-	ND (0.034)
3,3'-Dichlorobenzidine	mg/kg	4	ND (0.072)	-	ND (0.071)	-	-	-	-	ND (0.14)	-	ND (0.074)	ND (0.078)	-	ND (0.069)
1,4-Dioxane	mg/kg	-	ND (0.036)	-	ND (0.036)	-	-	-	-	ND (0.072)	-	ND (0.037)	ND (0.039)	-	ND (0.034)
Dibenzo(a,h)anthracene	mg/kg	0.2	ND (0.036)	-	ND (0.036)	-	-	-	-	ND (0.072)	-	ND (0.037)	ND (0.039)	-	ND (0.034)
Dibenzofuran	mg/kg	-	ND (0.072)	-	0.835	-	-	-	-	ND (0.14)	-	ND (0.074)	ND (0.078)	-	ND (0.069)
Di-n-butyl phthalate	mg/kg	68000	ND (0.072)	-	ND (0.071)	-	-	-	-	ND (0.14)	-	ND (0.074)	ND (0.078)	-	ND (0.069)
Di-n-octyl phthalate	mg/kg	27000	ND (0.072)	-	ND (0.071)	-	-	-	-	ND (0.14)	-	ND (0.074)	ND (0.078)	-	ND (0.069)
Diethyl phthalate	mg/kg	550000	ND (0.072)	-	ND (0.071)	-	-	-	-	ND (0.14)	-	ND (0.074)	ND (0.078)	-	ND (0.069)
Dimethyl phthalate	mg/kg	-	ND (0.072)	-	ND (0.071)	-	-	-	-	ND (0.14)	-	ND (0.074)	ND (0.078)	-	ND (0.069)
bis(2-Ethylhexyl)phthalate	mg/kg	140	ND (0.072)	-	0.414	-	-	-	-	0.108 J	-	ND (0.074)	ND (0.078)	-	ND (0.069)
Fluoranthene	mg/kg	24000	ND (0.036)	-	0.0578	-	-	-	-	0.0378 J	-	ND (0.037)	ND (0.039)	-	0.0301 J
Fluorene	mg/kg	24000	ND (0.036)	-	2.68	-	-	-	-	0.706	-	ND (0.037)	ND (0.039)	-	0.0863
Hexachlorobenzene	mg/kg	1	ND (0.072)	-	ND (0.071)	-	-	-	-	ND (0.14)	-	ND (0.074)	ND (0.078)	-	ND (0.069)
Hexachlorobutadiene	mg/kg	25	ND (0.036)	-	ND (0.036)	-	-	-	-	ND (0.072)	-	ND (0.037)	ND (0.039)	-	ND (0.034)
Hexachlorocyclopentadiene	mg/kg	110	ND (0.36)	-	ND (0.36)	-	-	-	-	ND (0.72)	-	ND (0.37)	ND (0.39)	-	ND (0.34)
Hexachloroethane	mg/kg	140	ND (0.18)	-	ND (0.18)	-	-	-	-	ND (0.36)	-	ND (0.19)	ND (0.19)	-	ND (0.17)
Indeno(1,2,3-cd)pyrene	mg/kg	2	ND (0.036)	-	ND (0.036)	-	-	-	-	ND (0.072)	-	ND (0.037)	ND (0.039)	-	ND (0.034)
Isophorone	mg/kg	2000	ND (0.072)	-	ND (0.071)	-	-	-	-	ND (0.14)	-	ND (0.074)	ND (0.078)	-	ND (0.069)
2-Methylnaphthalene	mg/kg	2400	ND (0.072)	-	15.7	-	-	-	-	0.179	-	ND (0.074)	0.0377 J	-	12.4
2-Nitroaniline	mg/kg	23000	ND (0.18)	-	ND (0.18)	-	-	-	-	ND (0.36)	-	ND (0.19)	ND (0.19)	-	ND (0.17)
3-Nitroaniline	mg/kg	-	ND (0.18)	-	ND (0.18)	-	-	-	-	ND (0.36)	-	ND (0.19)	ND (0.19)	-	ND (0.17)
4-Nitroaniline	mg/kg	-	ND (0.18)	-	ND (0.18)	-	-	-	-	ND (0.36)	-	ND (0.19)	ND (0.19)	-	ND (0.17)
Naphthalene	mg/kg	17	ND (0.036)	-	ND (0.036)	-	-	-	-	ND (0.072)	-	ND (0.037)	0.0222 J	-	5.88
Nitrobenzene	mg/kg	340	ND (0.072)	-	ND (0.071)	-	-	-	-	ND (0.14)	-	ND (0.074)	ND (0.078)	-	ND (0.069)
N-Nitroso-di-n-propylamine	mg/kg	0.3	ND (0.072)	-	ND (0.071)	-	-	-	-	ND (0.14)	-	ND (0.074)	ND (0.078)	-	ND (0.069)
N-Nitrosodiphenylamine	mg/kg	390	ND (0.18)	-	ND (0.18)	-	-	-	-	ND (0.36)	-	ND (0.19)	ND (0.19)	-	ND (0.17)
Phenanthrene	mg/kg	300000	ND (0.036)	-	5.55	-	-	-	-	1.32	-	0.0176 J	ND (0.039)	-	0.384
Pyrene	mg/kg	18000	ND (0.036)	-	0.232	-	-	-	-	0.0829	-	0.0167 J	ND (0.039)	-	0.205
1,2,4,5-Tetrachlorobenzene	mg/kg	-	ND (0.18)	-	ND (0.18)	-	-	-	-	ND (0.36)	-	ND (0.19)	ND (0.19)	-	ND (0.17)



### Summary of Soil Analytical Results at AOC 80 - Former Crude Topping Unit

[illegible]

### Summary of Soil Analytical Results at AOC 80 - Former Crude Topping Unit

All results in mg/kg unless otherwise noted.	
mg/kg	milligrams per kilogram
J	Estimated Value
NS	Not Sampled
ND	Not Detected
NA	Not Analyzed
( )	Method Detection Limit
B	Compound Found in Blank
**	Health based standard defaults to soil saturation limit
b	Result is from 2nd run
a	Result is from 2nd run
	Exceeds NJDEP Non-Residential Soil Remediation Standard

Table 4-1  
Former Hess Port Reading Terminal (HC-PR)  
750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Analytical Results - AOC-84 - Former Tank North of Administration Building

Client Sample ID:		NJ Non-Residential Direct Contact Soil	PSRR-SS-1
Lab Sample ID:			JB98641-6
Date Sampled:			7/7/2015
Matrix:			Soil
Depth:			1.5-2.0 ft
GC/MS Volatiles (SW846 8260C)			
Acetone	mg/kg	NA	-
Benzene	mg/kg	5	-
Bromochloromethane	mg/kg	-	-
Bromodichloromethane	mg/kg	3	-
Bromoform	mg/kg	280	-
Bromomethane	mg/kg	59	-
2-Butanone (MEK)	mg/kg	44000	-
Carbon disulfide	mg/kg	110000	-
Carbon tetrachloride	mg/kg	2	-
Chlorobenzene	mg/kg	7400	-
Chloroethane	mg/kg	1100	-
Chloroform	mg/kg	2	-
Chloromethane	mg/kg	12	-
Cyclohexane	mg/kg	-	-
1,2-Dibromo-3-chloropropane	mg/kg	0.2	-
Dibromochloromethane	mg/kg	8	-
1,2-Dibromoethane	mg/kg	0.04	-
1,2-Dichlorobenzene	mg/kg	59000	-
1,3-Dichlorobenzene	mg/kg	59000	-
1,4-Dichlorobenzene	mg/kg	13	-
Dichlorodifluoromethane	mg/kg	230000	-
1,1-Dichloroethane	mg/kg	24	-
1,2-Dichloroethane	mg/kg	3	-
1,1-Dichloroethene	mg/kg	150	-
cis-1,2-Dichloroethene	mg/kg	560	-
trans-1,2-Dichloroethene	mg/kg	720	-
1,2-Dichloropropane	mg/kg	5	-
cis-1,3-Dichloropropene	mg/kg	7	-
trans-1,3-Dichloropropene	mg/kg	7	-
Ethylbenzene	mg/kg	110000	-
Freon 113	mg/kg	-	-
2-Hexanone	mg/kg	-	-
Isopropylbenzene	mg/kg	-	-
Methyl Acetate	mg/kg	NA	-
Methylcyclohexane	mg/kg	-	-
Methyl Tert Butyl Ether	mg/kg	320	-
4-Methyl-2-pentanone(MIBK)	mg/kg	-	-
Methylene chloride	mg/kg	97	-
Styrene	mg/kg	260	-
1,1,2,2-Tetrachloroethane	mg/kg	3	-
Tetrachloroethene	mg/kg	5	-
Toluene	mg/kg	91000	-
1,2,3-Trichlorobenzene	mg/kg	-	-
1,2,4-Trichlorobenzene	mg/kg	820	-
1,1,1-Trichloroethane	mg/kg	4200	-
1,1,2-Trichloroethane	mg/kg	6	-
Trichloroethene	mg/kg	20	-
Trichlorofluoromethane	mg/kg	340000	-
Vinyl chloride	mg/kg	2	-
m,p-Xylene	mg/kg	170000	-
o-Xylene	mg/kg	170000	-
Xylene (total)	mg/kg	170000	-

Table 4-1  
Former Hess Port Reading Terminal (HC-PR)  
750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Analytical Results - AOC-84 - Former Tank North of Administration Building

Client Sample ID:		NJ Non-Residential Direct Contact Soil	PSRR-SS-1
Lab Sample ID:			JB98641-6
Date Sampled:			7/7/2015
Matrix:			Soil
Depth:			1.5-2.0 ft
GC/MS Volatile TIC			
Total TIC, Volatile	mg/kg	-	-
Total TIC, Volatile	mg/kg	-	-
Total Alkanes	mg/kg	-	-
Total Alkanes	mg/kg	-	-
GC/MS Semi-volatiles (SW846 8270D)			
Acenaphthene	mg/kg	37000	ND (0.0076)
Acenaphthylene	mg/kg	300000	ND (0.0057)
2-Chlorophenol	mg/kg	2200	-
Anthracene	mg/kg	30000	ND (0.0085)
Benzo(a)anthracene	mg/kg	2	ND (0.0073)
4-Chloro-3-methyl phenol	mg/kg	-	-
Benzo(a)pyrene	mg/kg	0.2	ND (0.0091)
2,4-Dichlorophenol	mg/kg	2100	-
Benzo(b)fluoranthene	mg/kg	2	ND (0.0074)
2,4-Dimethylphenol	mg/kg	14000	-
2,4-Dinitrophenol	mg/kg	1400	-
Benzo(g,h,i)perylene	mg/kg	30000	ND (0.012)
Benzo(k)fluoranthene	mg/kg	23	ND (0.012)
4,6-Dinitro-o-cresol	mg/kg	68	-
Chrysene	mg/kg	230	ND (0.0093)
Dibenzo(a,h)anthracene	mg/kg	0.2	ND (0.0091)
Fluoranthene	mg/kg	24000	0.0164 J
2-Methylphenol	mg/kg	3400	-
3&4-Methylphenol	mg/kg	-	-
Fluorene	mg/kg	24000	ND (0.029)
Indeno(1,2,3-cd)pyrene	mg/kg	2	ND (0.012)
2-Nitrophenol	mg/kg	-	-
Naphthalene	mg/kg	17	ND (0.0056)
4-Nitrophenol	mg/kg	-	-
Pentachlorophenol	mg/kg	10	-
Phenanthrene	mg/kg	300000	ND (0.0080)
Pyrene	mg/kg	18000	ND (0.0085)
GC Semi-volatiles (NJDEP EPH)			
EPH (C9-C28)	mg/kg	-	ND (4.8)
EPH (>C28-C40)	mg/kg	-	ND (4.8)
Total EPH (C9-C40)	mg/kg	-	ND (4.8)
GC Semi-volatiles (SW846 8082A)			
Aroclor 1016	mg/kg	1	ND (0.011)
Aroclor 1221	mg/kg	1	ND (0.020)
Aroclor 1232	mg/kg	1	ND (0.011)
Aroclor 1242	mg/kg	1	ND (0.016)
Aroclor 1248	mg/kg	1	ND (0.011)
Aroclor 1254	mg/kg	1	ND (0.015)
Aroclor 1260	mg/kg	1	ND (0.015)
Aroclor 1268	mg/kg	1	ND (0.011)
Aroclor 1262	mg/kg	1	ND (0.0097)



Table 4-1  
Former Hess Port Reading Terminal (HC-PR)  
750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Analytical Results - AOC-84 - Former Tank North of Administration Building

Client Sample ID:		NJ Non-Residential Direct Contact Soil	PSRR-SS-1
Lab Sample ID:			JB98641-6
Date Sampled:			7/7/2015
Matrix:			Soil
Depth:			1.5-2.0 ft
Metals Analysis			
Aluminum	mg/kg	NA	8570
Antimony	mg/kg	450	<2.2
Arsenic	mg/kg	19	4
Barium	mg/kg	59000	69.9
Beryllium	mg/kg	140	0.66
Cadmium	mg/kg	78	<0.55
Calcium	mg/kg	-	2630
Chromium	mg/kg	-	17.2
Chromium, Hexavalent	mg/kg	-	-
Cobalt	mg/kg	590	8.2
Copper	mg/kg	45000	24.1
Iron	mg/kg	-	19600
Lead	mg/kg	800	21.5
Magnesium	mg/kg	-	3740
Manganese	mg/kg	5900	537
Mercury	mg/kg	65	<0.036
Nickel	mg/kg	23000	18.8
Potassium	mg/kg	-	1540
Selenium	mg/kg	5700	<2.2
Silver	mg/kg	5700	0.97
Sodium	mg/kg	-	<1100
Sulfur	mg/kg	-	-
Thallium	mg/kg	79	<1.1
Vanadium	mg/kg	1100	23.1
Zinc	mg/kg	110000	57.7
General Chemistry			
Solids, Percent	%	-	88.3
All results in mg/kg unless otherwise noted.			
mg/kg	milligrams per kilogram		
J	Estimated Value		
NS	Not Sampled		
ND	Not Detected		
NA	Not Analyzed		
( )	Method Detection Limit		
B	Compound Found in Blank		
**	Health based standard defaults to soil saturation limit		
b	Result is from 2nd run		
a	Result is from 2nd run		
	Exceeds NJDEP Non-Residential Soil Remediation Standard		

Table 4-1  
Hess Corporation - Former Port Reading Complex (HC-PR)  
750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Analytical Results - AOC-85 - Marine Vapor Recovery Unit (VRU) - TK-4701 and TK -4801

Client Sample ID:		NJ Non-Residential Direct Contact Soil (NJAC 7:26D 6/08)	MVRU-SS-1 (0.5-1.0)	MVRU-SS-2 (0.5-1.0)	MVRU-SS-3 (13.0-13.5)	MVRU-SS-4 (8.5-9.0)	MVRU-SS-5 (9.0-9.5)	MVRU-SS-5 (0.5-1.0)	MVRU-SS-6 (7.5-8.0)
Lab Sample ID:			JB75199-1/1A	JB75199-2/2A	JB75199-3/3A	JB75005-1/1R	JB75005-2/2R	JB75005-3	JB75199-4/4A
Date Sampled:			8/27/2014	8/27/2014	8/27/2014	8/26/2014	8/26/2014	8/26/2014	8/27/2014
Matrix:			Soil	Soil	Soil	Soil	Soil	Soil	Soil
<b>Volatile Organic Compounds</b>									
Acetone	mg/kg	-	0.0066 J	ND (0.0054)	0.0097 J	0.0566	0.13	-	ND (0.17)
Benzene	mg/kg	5	ND (0.0017)	ND (0.0038)	0.0023 J	0.00030 J	ND (0.0018)	-	ND (0.012)
Bromochloromethane	mg/kg	-	ND (0.0027)	ND (0.0060)	ND (0.0030)	ND (0.0033)	ND (0.0029)	-	ND (0.019)
Bromodichloromethane	mg/kg	3	ND (0.0020)	ND (0.0044)	ND (0.0022)	ND (0.0024)	ND (0.0021)	-	ND (0.014)
Bromofrom	mg/kg	280	ND (0.0017)	ND (0.0039)	ND (0.0019)	ND (0.0021)	ND (0.0019)	-	ND (0.012)
Bromomethane	mg/kg	59	ND (0.0028)	ND (0.0063)	ND (0.0032)	ND (0.0034)	ND (0.0030)	-	ND (0.020)
2-Butanone (MEK)	mg/kg	44,000	ND (0.0018)	ND (0.0041)	ND (0.0020)	0.0097 J	0.0235	-	ND (0.13)
Carbon disulfide	mg/kg	110,000	0.00059 J	0.0034 J	0.0023	0.00077 J	0.0028	-	ND (0.020)
Carbon tetrachloride	mg/kg	2	ND (0.0014)	ND (0.0031)	ND (0.0016)	ND (0.0017)	ND (0.0015)	-	ND (0.0096)
Chlorobenzene	mg/kg	7,400	ND (0.0013)	ND (0.0030)	0.0046 J	ND (0.0016)	ND (0.0014)	-	ND (0.0094)
Chloroethane	mg/kg	1,100	ND (0.0027)	ND (0.0062)	ND (0.0031)	ND (0.0034)	ND (0.0030)	-	ND (0.019)
Chloroform	mg/kg	2	ND (0.0013)	ND (0.0029)	ND (0.0015)	ND (0.0016)	ND (0.0014)	-	ND (0.0091)
Chloromethane	mg/kg	12	ND (0.0029)	ND (0.0066)	ND (0.0033)	ND (0.0036)	ND (0.0032)	-	ND (0.021)
Cyclohexane	mg/kg	-	ND (0.0034)	ND (0.0077)	0.0049 J	ND (0.0042)	ND (0.0037)	-	0.0516 J
1,2-Dibromo-3-chloropropane	mg/kg	0.2	ND (0.0038)	ND (0.0085)	ND (0.0043)	ND (0.0046)	ND (0.0041)	-	ND (0.026)
Dibromochloromethane	mg/kg	8	ND (0.0017)	ND (0.0038)	ND (0.0019)	ND (0.0021)	ND (0.0018)	-	ND (0.012)
1,2-Dibromoethane	mg/kg	0.04	ND (0.0017)	ND (0.0039)	ND (0.0020)	ND (0.0021)	ND (0.0019)	-	ND (0.012)
1,2-Dichlorobenzene	mg/kg	59,000	ND (0.0018)	ND (0.0041)	ND (0.0021)	ND (0.0022)	ND (0.0020)	-	ND (0.013)
1,3-Dichlorobenzene	mg/kg	59,000	ND (0.0019)	ND (0.0042)	ND (0.0021)	ND (0.0023)	ND (0.0020)	-	ND (0.013)
1,4-Dichlorobenzene	mg/kg	13	ND (0.0016)	ND (0.0036)	ND (0.0018)	ND (0.0020)	ND (0.0017)	-	ND (0.011)
Dichlorodifluoromethane	mg/kg	230,000	ND (0.0050)	ND (0.0111)	ND (0.0057)	ND (0.0062)	ND (0.0054)	-	ND (0.035)
1,1-Dichloroethane	mg/kg	24	ND (0.0018)	ND (0.0040)	ND (0.0020)	ND (0.0022)	ND (0.0019)	-	ND (0.013)
1,2-Dichloroethane	mg/kg	3	ND (0.0024)	ND (0.0055)	ND (0.0028)	ND (0.0030)	ND (0.0026)	-	ND (0.017)
1,1-Dichloroethene	mg/kg	150	ND (0.0026)	ND (0.0060)	ND (0.0030)	ND (0.0033)	ND (0.0029)	-	ND (0.019)
cis-1,2-Dichloroethene	mg/kg	560	ND (0.0025)	ND (0.0056)	ND (0.0028)	ND (0.0031)	ND (0.0027)	-	ND (0.018)
trans-1,2-Dichloroethene	mg/kg	720	ND (0.0018)	ND (0.0041)	ND (0.0021)	ND (0.0022)	ND (0.0020)	-	ND (0.013)
1,2-Dichloropropane	mg/kg	5	ND (0.0016)	ND (0.0037)	ND (0.0019)	ND (0.0020)	ND (0.0018)	-	ND (0.012)
cis-1,3-Dichloropropene	mg/kg	7	ND (0.0012)	ND (0.0028)	ND (0.0014)	ND (0.0015)	ND (0.0013)	-	ND (0.0086)
trans-1,3-Dichloropropene	mg/kg	7	ND (0.0016)	ND (0.0037)	ND (0.0018)	ND (0.0020)	ND (0.0018)	-	ND (0.011)
Ethylbenzene	mg/kg	110,000	ND (0.0019)	ND (0.0042)	0.0019	ND (0.0023)	ND (0.0020)	-	0.0347 J
Freon 113	mg/kg	-	ND (0.0052)	ND (0.0112)	ND (0.0059)	ND (0.0064)	ND (0.0057)	-	ND (0.037)
2-Hexanone	mg/kg	-	ND (0.0015)	ND (0.0035)	ND (0.0017)	ND (0.0019)	ND (0.0017)	-	ND (0.11)
Isopropylbenzene	mg/kg	-	ND (0.0018)	ND (0.0040)	0.011	0.00036 J	ND (0.0019)	-	2.02
Methyl Acetate	mg/kg	-	ND (0.0011)	ND (0.0024)	ND (0.0012)	ND (0.0013)	ND (0.0011)	-	ND (0.075)
<b>Volatile Organic Compounds (continued)</b>									
Methylcyclohexane	mg/kg	-	ND (0.00021)	ND (0.00047)	0.0054	ND (0.00026)	ND (0.00023)	-	1.15
Methyl Tert Butyl Ether	mg/kg	320	ND (0.0016)	ND (0.0036)	ND (0.0018)	ND (0.0020)	ND (0.0017)	-	ND (0.011)
4-Methyl-2-pentanone(MIBK)	mg/kg	-	ND (0.00051)	ND (0.0012)	ND (0.00058)	ND (0.00063)	ND (0.00056)	-	ND (0.036)
Methylene chloride	mg/kg	97	ND (0.0014)	ND (0.0032)	ND (0.0016)	ND (0.0018)	0.0019 J	-	ND (0.10)
Styrene	mg/kg	260	ND (0.0017)	ND (0.0039)	ND (0.0020)	ND (0.0021)	ND (0.0019)	-	ND (0.012)
1,1,2,2-Tetrachloroethane	mg/kg	3	ND (0.00021)	ND (0.00047)	ND (0.00024)	ND (0.00026)	ND (0.00023)	-	ND (0.015)
Tetrachloroethene	mg/kg	5	ND (0.00017)	ND (0.00038)	ND (0.00019)	ND (0.00021)	ND (0.00018)	-	ND (0.012)
Toluene	mg/kg	91,000	ND (0.00022)	ND (0.00050)	ND (0.00025)	ND (0.00027)	ND (0.00024)	-	ND (0.016)
1,2,3-Trichlorobenzene	mg/kg	-	ND (0.00020)	ND (0.00044)	ND (0.00022)	ND (0.00024)	ND (0.00021)	-	ND (0.014)
1,2,4-Trichlorobenzene	mg/kg	820	ND (0.00017)	ND (0.00039)	ND (0.00021)	ND (0.00021)	ND (0.00019)	-	ND (0.012)
1,1,1-Trichloroethane	mg/kg	4,200	ND (0.00013)	ND (0.00030)	ND (0.00015)	ND (0.00017)	ND (0.00015)	-	ND (0.0095)
1,1,2-Trichloroethane	mg/kg	6	ND (0.00021)	ND (0.00048)	ND (0.00024)	ND (0.00026)	ND (0.00023)	-	ND (0.015)
Trichloroethene	mg/kg	20	ND (0.00019)	ND (0.00043)	ND (0.00022)	ND (0.00024)	ND (0.00021)	-	ND (0.014)
Trichlorofluoromethane	mg/kg	340,000	ND (0.00016)	ND (0.00037)	ND (0.00019)	ND (0.00020)	ND (0.00018)	-	ND (0.012)
Vinyl chloride	mg/kg	2	ND (0.00036)	ND (0.00081)	ND (0.00041)	ND (0.00044)	ND (0.00039)	-	ND (0.025)
m,p-Xylene	mg/kg	170,000	ND (0.00039)	ND (0.00089)	0.0063	ND (0.00048)	ND (0.00043)	-	0.0573 J
Methylcyclohexane	mg/kg	-	ND (0.00021)	ND (0.00047)	0.0054	ND (0.00026)	ND (0.00023)	-	1.15
Methyl Tert Butyl Ether	mg/kg	320	ND (0.00016)	ND (0.00036)	ND (0.00018)	ND (0.00020)	ND (0.00017)	-	ND (0.011)
4-Methyl-2-pentanone(MIBK)	mg/kg	-	ND (0.00051)	ND (0.0012)	ND (0.00058)	ND (0.00063)	ND (0.00056)	-	ND (0.036)
Methylene chloride	mg/kg	97	ND (0.0014)	ND (0.0032)	ND (0.0016)	ND (0.0018)	0.0019 J	-	ND (0.10)
Styrene	mg/kg	260	ND (0.00017)	ND (0.00039)	ND (0.00020)	ND (0.00021)	ND (0.00019)	-	ND (0.012)
1,1,2,2-Tetrachloroethane	mg/kg	3	ND (0.00021)	ND (0.00047)	ND (0.00024)	ND (0.00026)	ND (0.00023)	-	ND (0.015)
Tetrachloroethene	mg/kg	5	ND (0.00017)	ND (0.00038)	ND (0.00019)	ND (0.00021)	ND (0.00018)	-	ND (0.012)
Toluene	mg/kg	91,000	ND (0.00022)	ND (0.00050)	ND (0.00025)	ND (0.00027)	ND (0.00024)	-	ND (0.016)
1,2,3-Trichlorobenzene	mg/kg	-	ND (0.00020)	ND (0.00044)	ND (0.00022)	ND (0.00024)	ND (0.00021)	-	ND (0.014)
1,2,4-Trichlorobenzene	mg/kg	820	ND (0.00017)	ND (0.00039)	ND (0.00020)	ND (0.00021)	ND (0.00019)	-	ND (0.012)
1,1,1-Trichloroethane	mg/kg	4,200	ND (0.00013)	ND (0.00030)	ND (0.00015)	ND (0.00017)	ND (0.00015)	-	ND (0.0095)
1,1,2-Trichloroethane	mg/kg	6	ND (0.00021)	ND (0.00048)	ND (0.00024)	ND (0.00026)	ND (0.00023)	-	ND (0.015)
Trichloroethene	mg/kg	20	ND (0.00019)	ND (0.00043)	ND (0.00022)	ND (0.00024)	ND (0.00021)	-	ND (0.014)
Trichlorofluoromethane	mg/kg	340,000	ND (0.00016)	ND (0.00037)	ND (0.00019)	ND (0.00020)	ND (0.00018)	-	ND (0.012)
Vinyl chloride	mg/kg	2	ND (0.00036)	ND (0.00081)	ND (0.00041)	ND (0.00044)	ND (0.00039)	-	ND (0.025)
m,p-Xylene	mg/kg	170,000	ND (0.00039)	ND (0.00089)	0.0063	ND (0.00048)	ND (0.00043)	-	0.0573 J
o-Xylene	mg/kg	170,000	ND (0.00021)	ND (0.00047)	0.0024	ND (0.00025)	ND (0.00022)	-	ND (0.015)
Xylene (total)	mg/kg	170,000	ND (0.00021)	ND (0.00047)	0.0088	0.00039 J	ND (0.00022)	-	0.0573 J
Total TIC, Volatile	mg/kg	-	0	0	4.004 J (15)	0.2041 J (15)	0.1213 J (13)	-	89.7 J (10)
Total Alkanes	mg/kg	-	0	0	0	0	0	-	71.1 J

Table 4-1  
Hess Corporation - Former Port Reading Complex (HC-PR)  
750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Analytical Results - AOC-85 - Marine Vapor Recovery Unit (VRU) - TK-4701 and TK -4801

Client Sample ID:		NJ Non-Residential Direct Contact Soil (NJAC 7:26D 6/08)	MVRU-SS-1 (0.5-1.0)	MVRU-SS-2 (0.5-1.0)	MVRU-SS-3 (13.0-13.5)	MVRU-SS-4 (8.5-9.0)	MVRU-SS-5 (9.0-9.5)	MVRU-SS-5 (0.5-1.0)	MVRU-SS-6 (7.5-8.0)
Lab Sample ID:			JB75199-1/1A	JB75199-2/2A	JB75199-3/3A	JB75005-1/1R	JB75005-2/2R	JB75005-3	JB75199-4/4A
Date Sampled:			8/27/2014	8/27/2014	8/27/2014	8/26/2014	8/26/2014	8/26/2014	8/27/2014
Matrix:			Soil	Soil	Soil	Soil	Soil	Soil	Soil
<b>Semi-Volatile Organic Compounds</b>									
2-Chlorophenol	mg/kg	2,200	-	-	-	ND (0.039)	ND (0.040)	-	-
4-Chloro-3-methyl phenol	mg/kg	-	-	-	-	ND (0.039)	ND (0.040)	-	-
2,4-Dichlorophenol	mg/kg	2,100	-	-	-	ND (0.063)	ND (0.065)	-	-
2,4-Dimethylphenol	mg/kg	14,000	-	-	-	ND (0.066)	ND (0.067)	-	-
2,4-Dinitrophenol	mg/kg	1,400	-	-	-	ND (0.048)	ND (0.049)	-	-
4,6-Dinitro-o-cresol	mg/kg	68	-	-	-	ND (0.048)	ND (0.049)	-	-
2-Methylphenol	mg/kg	3,400	-	-	-	ND (0.045)	ND (0.046)	-	-
3&4-Methylphenol	mg/kg	-	-	-	-	ND (0.050)	ND (0.051)	-	-
2-Nitrophenol	mg/kg	-	-	-	-	ND (0.042)	ND (0.043)	-	-
4-Nitrophenol	mg/kg	-	-	-	-	ND (0.066)	ND (0.068)	-	-
Pentachlorophenol	mg/kg	10	-	-	-	ND (0.067)	ND (0.069)	-	-
Phenol	mg/kg	210,000	-	-	-	ND (0.041)	ND (0.042)	-	-
2,3,4,6-Tetrachlorophenol	mg/kg	-	-	-	-	ND (0.040)	ND (0.041)	-	-
2,4,5-Trichlorophenol	mg/kg	68,000	-	-	-	ND (0.046)	ND (0.047)	-	-
2,4,6-Trichlorophenol	mg/kg	74	-	-	-	ND (0.037)	ND (0.038)	-	-
Acenaphthene	mg/kg	37,000	-	-	-	0.161	0.0937	-	-
Acenaphthylene	mg/kg	300,000	-	-	-	ND (0.013)	ND (0.013)	-	-
Acetophenone	mg/kg	5	-	-	-	ND (0.0069)	ND (0.0071)	-	-
Anthracene	mg/kg	30,000	-	-	-	ND (0.014)	ND (0.014)	-	-
Atrazine	mg/kg	2,400	-	-	-	ND (0.0077)	ND (0.0079)	-	-
Benzo(a)anthracene	mg/kg	2	-	-	-	3.32	0.472	-	-
Benzo(a)pyrene	mg/kg	0.2	-	-	-	3.04	0.352	-	-
Benzo(b)fluoranthene	mg/kg	2	-	-	-	1.57	0.169	-	-
Benzo(g,h,i)perylene	mg/kg	30,000	-	-	-	1.68	0.17	-	-
Benzo(k)fluoranthene	mg/kg	23	-	-	-	0.331	0.0409	-	-
4-Bromophenyl phenyl ether	mg/kg	-	-	-	-	ND (0.014)	ND (0.015)	-	-
Butyl benzyl phthalate	mg/kg	14,000	-	-	-	ND (0.023)	ND (0.023)	-	-
1,1'-Biphenyl	mg/kg	34,000	-	-	-	ND (0.0046)	ND (0.0047)	-	-
Benzaldehyde	mg/kg	68,000	-	-	-	ND (0.0090)	ND (0.0092)	-	-
2-Chloronaphthalene	mg/kg	-	-	-	-	ND (0.012)	ND (0.012)	-	-
4-Chloroaniline	mg/kg	-	-	-	-	ND (0.013)	ND (0.013)	-	-
Carbazole	mg/kg	96	-	-	-	ND (0.018)	ND (0.019)	-	-
Caprolactam	mg/kg	340,000	-	-	-	ND (0.012)	ND (0.013)	-	-
Chrysene	mg/kg	230	-	-	-	6.53	0.709	-	-
bis(2-Chloroethoxy)methane	mg/kg	-	-	-	-	ND (0.016)	ND (0.016)	-	-
bis(2-Chloroethyl)ether	mg/kg	2	-	-	-	ND (0.012)	ND (0.012)	-	-
bis(2-Chloroisopropyl)ether	mg/kg	67	-	-	-	ND (0.012)	ND (0.012)	-	-
4-Chlorophenyl phenyl ether	mg/kg	-	-	-	-	ND (0.012)	ND (0.012)	-	-
2,4-Dinitrotoluene	mg/kg	3	-	-	-	ND (0.017)	ND (0.018)	-	-
2,6-Dinitrotoluene	mg/kg	3	-	-	-	ND (0.015)	ND (0.015)	-	-
<b>Semi-Volatile Organic Compounds (continued)</b>									
3,3'-Dichlorobenzidine	mg/kg	4	-	-	-	ND (0.010)	ND (0.010)	-	-
1,4-Dioxane	mg/kg	-	-	-	-	ND (0.026)	ND (0.026)	-	-
Dibenzo(a,h)anthracene	mg/kg	0.2	-	-	-	0.662	0.0485	-	-
Dibenzofuran	mg/kg	-	-	-	-	ND (0.012)	ND (0.012)	-	-
Di-n-butyl phthalate	mg/kg	68,000	-	-	-	ND (0.0087)	0.118	-	-
Di-n-octyl phthalate	mg/kg	27,000	-	-	-	ND (0.019)	ND (0.020)	-	-
Diethyl phthalate	mg/kg	550,000	-	-	-	ND (0.013)	ND (0.014)	-	-
Dimethyl phthalate	mg/kg	-	-	-	-	ND (0.014)	ND (0.014)	-	-
bis(2-Ethylhexyl)phthalate	mg/kg	140	-	-	-	ND (0.035)	0.0432 J	-	-
Fluoranthene	mg/kg	24,000	-	-	-	0.43	0.102	-	-
Fluorene	mg/kg	24,000	-	-	-	0.115	0.0271 J	-	-
Hexachlorobenzene	mg/kg	1	-	-	-	ND (0.013)	ND (0.013)	-	-
Hexachlorobutadiene	mg/kg	25	-	-	-	ND (0.011)	ND (0.011)	-	-
Hexachlorocyclopentadiene	mg/kg	110	-	-	-	ND (0.040)	ND (0.041)	-	-
Hexachloroethane	mg/kg	140	-	-	-	ND (0.011)	ND (0.011)	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	2	-	-	-	0.626	0.0455	-	-
Isophorone	mg/kg	2,000	-	-	-	ND (0.011)	ND (0.011)	-	-
2-Methylnaphthalene	mg/kg	2,400	-	-	-	ND (0.022)	ND (0.022)	-	-
2-Nitroaniline	mg/kg	23,000	-	-	-	ND (0.017)	ND (0.018)	-	-
3-Nitroaniline	mg/kg	-	-	-	-	ND (0.016)	ND (0.016)	-	-
4-Nitroaniline	mg/kg	-	-	-	-	ND (0.015)	ND (0.016)	-	-
Naphthalene	mg/kg	17	-	-	-	ND (0.011)	0.044	-	-
Nitrobenzene	mg/kg	340	-	-	-	ND (0.011)	ND (0.012)	-	-
N-Nitroso-di-n-propylamine	mg/kg	0.3	-	-	-	ND (0.0096)	ND (0.0098)	-	-
N-Nitrosodiphenylamine	mg/kg	390	-	-	-	ND (0.023)	ND (0.024)	-	-
Phenanthrene	mg/kg	300,000	-	-	-	0.107	ND (0.018)	-	-
Pyrene	mg/kg	18,000	-	-	-	7.09	0.841	-	-
1,2,4,5-Tetrachlorobenzene	mg/kg	-	-	-	-	ND (0.012)	ND (0.012)	-	-

Client Sample ID:		NJ Non-Residential Direct Contact Soil (NJAC 7:26D 6/08)	MVRU-SS-1 (0.5-1.0)	MVRU-SS-2 (0.5-1.0)	MVRU-SS-3 (13.0-13.5)	MVRU-SS-4 (8.5-9.0)	MVRU-SS-5 (9.0-9.5)	MVRU-SS-5 (0.5-1.0)	MVRU-SS-6 (7.5-8.0)
Lab Sample ID:			JB75199-1/1A	JB75199-2/2A	JB75199-3/3A	JB75005-1/1R	JB75005-2/2R	JB75005-3	JB75199-4/4A
Date Sampled:			8/27/2014	8/27/2014	8/27/2014	8/26/2014	8/26/2014	8/26/2014	8/27/2014
Matrix:			Soil	Soil	Soil	Soil	Soil	Soil	Soil
Semi-Volatile Organic Tentatively Identified Compounds									
Total TIC, Semi-Volatile	mg/kg	-	-	-	-	49.2 J (24)	15.49 J (23)	-	-
Total Alkanes	mg/kg	-	-	-	-	0	0	-	-
New Jersey Department of Environmental Protection Extractable Petroleum Hydrocarbons									
EPH (C9-C28)	mg/kg	-	22.4	21	221	2,070	286	ND (3.5)	129
EPH (C28-C40)	mg/kg	-	21.1	ND (3.0)	17.7	942	119	ND (4.3)	ND (3.0)
Total EPH (C9-C40)	mg/kg	54,000***	43.5	21	239	3,010	405	ND (3.5)	129
General Chemistry									
Solids, Percent	%	-	92.8	92.1	77.6	79.8	79.9	91.7	86.7
All results in mg/kg unless otherwise noted.									
mg/kg	milligrams per kilogram								
J	Estimated Value								
NS	Not Sampled								
ND	Not Detected								
NA	Not Analyzed								
( )	Method Detection Limit								
B	Compound Found in Blank								
**	Health based standard defaults to soil saturation limit								
b	Result is from 2nd run								
a	Result is from 2nd run								
	Exceeds NJDEP Non-Residential Soil Remediation Standard								

Table 4-1

Hess Corporation - Former Port Reading Complex (HC-PR) - 750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Analytical Results at AOC-87 – Flare Knock Out Drum

Client Sample ID:		NJ Non-Residential Direct Contact Soil	FKD-SS-1	FKD-SS-1	FKD-SS-2
Lab Sample ID:			JC3371-1	JC3371-1R	JC3371-2
Date Sampled:			9/8/2015	9/8/2015	9/8/2015
Matrix:			Soil	Soil	Soil
Depth:			1.5-2.0 ft	1.5-2.0 ft	2.5-3.0 ft
GC/MS Volatiles (SW846 8260C)					
Acetone	mg/kg	NA	-	0.0098	-
Benzene	mg/kg	5	-	ND (0.00041)	-
Bromochloromethane	mg/kg	-	-	ND (0.0041)	-
Bromodichloromethane	mg/kg	3	-	ND (0.0017)	-
Bromoform	mg/kg	280	-	ND (0.0041)	-
Bromomethane	mg/kg	59	-	ND (0.0041)	-
2-Butanone (MEK)	mg/kg	44000	-	ND (0.0083)	-
Carbon disulfide	mg/kg	110000	-	ND (0.0017)	-
Carbon tetrachloride	mg/kg	2	-	ND (0.0017)	-
Chlorobenzene	mg/kg	7400	-	ND (0.0017)	-
Chloroethane	mg/kg	1100	-	ND (0.0041)	-
Chloroform	mg/kg	2	-	ND (0.0017)	-
Chloromethane	mg/kg	12	-	ND (0.0041)	-
Cyclohexane	mg/kg	-	-	ND (0.0017)	-
1,2-Dibromo-3-chloropropane	mg/kg	0.2	-	ND (0.0017)	-
Dibromochloromethane	mg/kg	8	-	ND (0.0017)	-
1,2-Dibromoethane	mg/kg	0.04	-	ND (0.00083)	-
1,2-Dichlorobenzene	mg/kg	59000	-	ND (0.00083)	-
1,3-Dichlorobenzene	mg/kg	59000	-	ND (0.00083)	-
1,4-Dichlorobenzene	mg/kg	13	-	ND (0.00083)	-
Dichlorodifluoromethane	mg/kg	230000	-	ND (0.0041)	-
1,1-Dichloroethane	mg/kg	24	-	ND (0.00083)	-
1,2-Dichloroethane	mg/kg	3	-	ND (0.00083)	-
1,1-Dichloroethene	mg/kg	150	-	ND (0.00083)	-
cis-1,2-Dichloroethene	mg/kg	560	-	ND (0.00083)	-
trans-1,2-Dichloroethene	mg/kg	720	-	ND (0.00083)	-
1,2-Dichloropropane	mg/kg	5	-	ND (0.0017)	-
cis-1,3-Dichloropropene	mg/kg	7	-	ND (0.0017)	-
trans-1,3-Dichloropropene	mg/kg	7	-	ND (0.0017)	-
Ethylbenzene	mg/kg	110000	-	ND (0.00083)	-
Freon 113	mg/kg	-	-	ND (0.0041)	-
2-Hexanone	mg/kg	-	-	ND (0.0041)	-
Isopropylbenzene	mg/kg	-	-	ND (0.0017)	-
Methyl Acetate	mg/kg	NA	-	ND (0.0041)	-
Methylcyclohexane	mg/kg	-	-	ND (0.0017)	-
Methyl Tert Butyl Ether	mg/kg	320	-	ND (0.00083)	-
4-Methyl-2-pentanone(MIBK)	mg/kg	-	-	ND (0.0041)	-
Methylene chloride	mg/kg	97	-	ND (0.0041)	-
Styrene	mg/kg	260	-	ND (0.0017)	-
1,1,2,2-Tetrachloroethane	mg/kg	3	-	ND (0.0017)	-
Tetrachloroethene	mg/kg	5	-	ND (0.0017)	-
Toluene	mg/kg	91000	-	ND (0.00083)	-
1,2,3-Trichlorobenzene	mg/kg	-	-	ND (0.0041)	-
1,2,4-Trichlorobenzene	mg/kg	820	-	ND (0.0041)	-
1,1,1-Trichloroethane	mg/kg	4200	-	ND (0.0017)	-
1,1,2-Trichloroethane	mg/kg	6	-	ND (0.0017)	-
Trichloroethene	mg/kg	20	-	ND (0.00083)	-
Trichlorofluoromethane	mg/kg	340000	-	ND (0.0041)	-
Vinyl chloride	mg/kg	2	-	ND (0.0017)	-
m,p-Xylene	mg/kg	170000	-	0.00056 J	-
o-Xylene	mg/kg	170000	-	ND (0.00083)	-
Xylene (total)	mg/kg	170000	-	0.00078 J	-
GC/MS Volatile TIC					
Total TIC, Volatile	mg/kg	-	-	0	-
Total Alkanes	mg/kg	-	-	0	-



Table 4-1

Hess Corporation - Former Port Reading Complex (HC-PR) - 750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Analytical Results at AOC-87 – Flare Knock Out Drum

Client Sample ID:		NJ Non-Residential Direct Contact Soil		FKD-SS-1	FKD-SS-1	FKD-SS-2
Lab Sample ID:				JC3371-1	JC3371-1R	JC3371-2
Date Sampled:				9/8/2015	9/8/2015	9/8/2015
Matrix:				Soil	Soil	Soil
Depth:				1.5-2.0 ft	1.5-2.0 ft	2.5-3.0 ft
GC/MS Semi-volatiles (SW846 8270D)						
2-Chlorophenol	mg/kg	2200	-	ND (0.072)	-	
4-Chloro-3-methyl phenol	mg/kg	-	-	ND (0.18)	-	
2,4-Dichlorophenol	mg/kg	2100	-	ND (0.18)	-	
2,4-Dimethylphenol	mg/kg	14000	-	ND (0.18)	-	
2,4-Dinitrophenol	mg/kg	1400	-	ND (0.18)	-	
4,6-Dinitro-o-cresol	mg/kg	68	-	ND (0.18)	-	
2-Methylphenol	mg/kg	3400	-	ND (0.072)	-	
3&4-Methylphenol	mg/kg	-	-	ND (0.072)	-	
2-Nitrophenol	mg/kg	-	-	ND (0.18)	-	
4-Nitrophenol	mg/kg	-	-	ND (0.36)	-	
Pentachlorophenol	mg/kg	10	-	ND (0.18)	-	
Phenol	mg/kg	210000	-	ND (0.072)	-	
2,3,4,6-Tetrachlorophenol	mg/kg	-	-	ND (0.18)	-	
2,4,5-Trichlorophenol	mg/kg	68000	-	ND (0.18)	-	
2,4,6-Trichlorophenol	mg/kg	74	-	ND (0.18)	-	
Acenaphthene	mg/kg	37000	-	ND (0.036)	-	
Acenaphthylene	mg/kg	300000	-	ND (0.036)	-	
Acetophenone	mg/kg	5	-	ND (0.18)	-	
Anthracene	mg/kg	30000	-	0.0294 J	-	
Atrazine	mg/kg	2400	-	ND (0.072)	-	
Benzo(a)anthracene	mg/kg	2	-	0.0604	-	
Benzo(a)pyrene	mg/kg	0.2	-	0.0789	-	
Benzo(b)fluoranthene	mg/kg	2	-	0.093	-	
Benzo(g,h,i)perylene	mg/kg	30000	-	0.0739	-	
Benzo(k)fluoranthene	mg/kg	23	-	0.0327 J	-	
4-Bromophenyl phenyl ether	mg/kg	-	-	ND (0.072)	-	
Butyl benzyl phthalate	mg/kg	14000	-	ND (0.072)	-	
1,1'-Biphenyl	mg/kg	34000	-	ND (0.072)	-	
Benzaldehyde	mg/kg	68000	-	ND (0.18)	-	
2-Chloronaphthalene	mg/kg	-	-	ND (0.072)	-	
4-Chloroaniline	mg/kg	-	-	ND (0.18)	-	
Carbazole	mg/kg	96	-	ND (0.072)	-	
Caprolactam	mg/kg	340000	-	ND (0.072)	-	
Chrysene	mg/kg	230	-	0.102	-	
bis(2-Chloroethoxy)methane	mg/kg	-	-	ND (0.072)	-	
bis(2-Chloroethyl)ether	mg/kg	2	-	ND (0.072)	-	
bis(2-Chloroisopropyl)ether	mg/kg	67	-	ND (0.072)	-	
4-Chlorophenyl phenyl ether	mg/kg	-	-	ND (0.072)	-	
2,4-Dinitrotoluene	mg/kg	3	-	ND (0.036)	-	
2,6-Dinitrotoluene	mg/kg	3	-	ND (0.036)	-	
3,3'-Dichlorobenzidine	mg/kg	4	-	ND (0.072)	-	
1,4-Dioxane	mg/kg	-	-	ND (0.036)	-	
Dibenzo(a,h)anthracene	mg/kg	0.2	-	0.0207 J	-	
Dibenzofuran	mg/kg	-	-	ND (0.072)	-	
Di-n-butyl phthalate	mg/kg	68000	-	ND (0.072)	-	
Di-n-octyl phthalate	mg/kg	27000	-	ND (0.072)	-	
Diethyl phthalate	mg/kg	550000	-	ND (0.072)	-	
Dimethyl phthalate	mg/kg	-	-	ND (0.072)	-	
bis(2-Ethylhexyl)phthalate	mg/kg	140	-	0.0709 J	-	
Fluoranthene	mg/kg	24000	-	0.126	-	
Fluorene	mg/kg	24000	-	0.0218 J	-	
Hexachlorobenzene	mg/kg	1	-	ND (0.072)	-	
Hexachlorobutadiene	mg/kg	25	-	ND (0.036)	-	
Hexachlorocyclopentadiene	mg/kg	110	-	ND (0.36)	-	
Hexachloroethane	mg/kg	140	-	ND (0.18)	-	
Indeno(1,2,3-cd)pyrene	mg/kg	2	-	0.0621	-	
Isophorone	mg/kg	2000	-	ND (0.072)	-	
2-Methylnaphthalene	mg/kg	2400	-	0.0511 J	-	
2-Nitroaniline	mg/kg	23000	-	ND (0.18)	-	
3-Nitroaniline	mg/kg	-	-	ND (0.18)	-	
4-Nitroaniline	mg/kg	-	-	ND (0.18)	-	
Naphthalene	mg/kg	17	-	0.0168 J	-	
Nitrobenzene	mg/kg	340	-	ND (0.072)	-	
N-Nitroso-di-n-propylamine	mg/kg	0.3	-	ND (0.072)	-	
N-Nitrosodiphenylamine	mg/kg	390	-	ND (0.18)	-	
Phenanthrene	mg/kg	300000	-	0.101	-	
Pyrene	mg/kg	18000	-	0.133	-	
1,2,4,5-Tetrachlorobenzene	mg/kg	-	-	ND (0.18)	-	
GC/MS Semi-volatile TIC						
Total TIC, Semi-Volatile	mg/kg	-	-	5.29 J	-	
Total Alkanes	mg/kg	-	-	1.22 J	-	

Table 4-1  
Hess Corporation - Former Port Reading Complex (HC-PR) - 750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Analytical Results at AOC-87 – Flare Knock Out Drum

Client Sample ID:		NJ Non-Residential Direct Contact Soil	FKD-SS-1	FKD-SS-1	FKD-SS-2
Lab Sample ID:			JC3371-1	JC3371-1R	JC3371-2
Date Sampled:			9/8/2015	9/8/2015	9/8/2015
Matrix:			Soil	Soil	Soil
Depth:			1.5-2.0 ft	1.5-2.0 ft	2.5-3.0 ft
GC Semi-volatiles (NJDEP EPH)					
EPH (C9-C28)	mg/kg	-	93.6	-	82.4
EPH (>C28-C40)	mg/kg	-	ND (7.1)	-	ND (7.3)
Total EPH (C9-C40)	mg/kg	-	93.6	-	82.4
GC Semi-volatiles (SW846 8082A)					
Aroclor 1016	mg/kg	1	-	ND (0.032)	-
Aroclor 1221	mg/kg	1	-	ND (0.032)	-
Aroclor 1232	mg/kg	1	-	ND (0.032)	-
Aroclor 1242	mg/kg	1	-	ND (0.032)	-
Aroclor 1248	mg/kg	1	-	ND (0.032)	-
Aroclor 1254	mg/kg	1	-	0.0679	-
Aroclor 1260	mg/kg	1	-	ND (0.032)	-
Aroclor 1268	mg/kg	1	-	ND (0.032)	-
Aroclor 1262	mg/kg	1	-	ND (0.032)	-
Metals Analysis					
Aluminum	mg/kg	NA	-	7970	-
Antimony	mg/kg	450	-	ND (2.2)	-
Arsenic	mg/kg	19	-	4.8	-
Barium	mg/kg	59000	-	43.3	-
Beryllium	mg/kg	140	-	0.65	-
Cadmium	mg/kg	78	-	ND (0.54)	-
Calcium	mg/kg	-	-	7200	-
Chromium	mg/kg	-	-	24.6	-
Cobalt	mg/kg	590	-	6.1	-
Copper	mg/kg	45000	-	41.3	-
Iron	mg/kg	-	-	15600	-
Lead	mg/kg	800	-	49.2	-
Magnesium	mg/kg	-	-	3170	-
Manganese	mg/kg	5900	-	179	-
Mercury	mg/kg	65	-	0.056	-
Nickel	mg/kg	23000	-	23.1	-
Potassium	mg/kg	-	-	1470	-
Selenium	mg/kg	5700	-	ND (2.2)	-
Silver	mg/kg	5700	-	1.1	-
Sodium	mg/kg	-	-	ND (1100)	-
Thallium	mg/kg	79	-	ND (1.1)	-
Vanadium	mg/kg	1100	-	27.1	-
Zinc	mg/kg	110000	-	102	-
General Chemistry					
Solids, Percent	%	-	92.7	-	87.5
All results in mg/kg unless otherwise noted.					
mg/kg	milligrams per kilogram				
J	Estimated Value				
NS	Not Sampled				
ND	Not Detected				
NA	Not Analyzed				
( )	Method Detection Limit				
B	Compound Found in Blank				
**	Health based standard defaults to soil saturation limit				
b	Result is from 2nd run				
a	Result is from 2nd run				
	Exceeds NJDEP Non-Residential Soil Remediation Standard				

Table 4-1  
Hess Corporation - Former Port Reading Complex (HC-PR) - 750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Analytical Results at AOC-88 – Compressor Building

Client Sample ID:		NJ Non-Residential Direct Contact Soil	CB-SS-1	CB-SS-1	CB-SS-2	CB-SS-2	CB-SS-2
Lab Sample ID:			JB99093-11	JB99093-11T	JB99093-12	JB99093-12R	JB99093-12T
Date Sampled:			7/13/2015	7/13/2015	7/13/2015	7/13/2015	7/13/2015
Matrix:			Soil	Soil	Soil	Soil	Soil
Deptj:			0.5-1.0 ft	0.5-1.0 ft	1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft
GC/MS Volatiles (SW846 8260C)							
Acetone	mg/kg	NA	-	-	-	ND (2.3)	-
Benzene	mg/kg	5	-	-	-	0.195 J	-
Bromochloromethane	mg/kg	-	-	-	-	ND (0.32)	-
Bromodichloromethane	mg/kg	3	-	-	-	ND (0.16)	-
Bromoform	mg/kg	280	-	-	-	ND (0.25)	-
Bromomethane	mg/kg	59	-	-	-	ND (0.38)	-
2-Butanone (MEK)	mg/kg	44000	-	-	-	ND (2.0)	-
Carbon disulfide	mg/kg	110000	-	-	-	ND (0.24)	-
Carbon tetrachloride	mg/kg	2	-	-	-	ND (0.24)	-
Chlorobenzene	mg/kg	7400	-	-	-	ND (0.16)	-
Chloroethane	mg/kg	1100	-	-	-	ND (0.50)	-
2-Chloroethyl vinyl ether	mg/kg	-	-	-	-	-	-
Chloroform	mg/kg	2	-	-	-	ND (0.16)	-
Chloromethane	mg/kg	12	-	-	-	ND (0.27)	-
Cyclohexane	mg/kg	-	-	-	-	0.552 J	-
1,2-Dibromo-3-chloropropane	mg/kg	0.2	-	-	-	ND (0.57)	-
Dibromochloromethane	mg/kg	8	-	-	-	ND (0.21)	-
1,2-Dibromoethane	mg/kg	0.04	-	-	-	ND (0.14)	-
1,2-Dichlorobenzene	mg/kg	59000	-	-	-	ND (0.13)	-
1,3-Dichlorobenzene	mg/kg	59000	-	-	-	ND (0.16)	-
1,4-Dichlorobenzene	mg/kg	13	-	-	-	ND (0.24)	-
Dichlorodifluoromethane	mg/kg	230000	-	-	-	ND (0.38)	-
1,1-Dichloroethane	mg/kg	24	-	-	-	ND (0.15)	-
1,2-Dichloroethane	mg/kg	3	-	-	-	ND (0.14)	-
1,1-Dichloroethene	mg/kg	150	-	-	-	ND (0.62)	-
cis-1,2-Dichloroethene	mg/kg	560	-	-	-	ND (0.82)	-
trans-1,2-Dichloroethene	mg/kg	720	-	-	-	ND (0.62)	-
1,2-Dichloropropane	mg/kg	5	-	-	-	ND (0.25)	-
cis-1,3-Dichloropropene	mg/kg	7	-	-	-	ND (0.12)	-
trans-1,3-Dichloropropene	mg/kg	7	-	-	-	ND (0.19)	-
Ethylbenzene	mg/kg	110000	-	-	-	6.25	-
Freon 113	mg/kg	-	-	-	-	ND (0.47)	-
2-Hexanone	mg/kg	-	-	-	-	ND (1.4)	-
Isopropylbenzene	mg/kg	-	-	-	-	20.2	-
Methyl Acetate	mg/kg	NA	-	-	-	ND (0.90)	-
Methylcyclohexane	mg/kg	-	-	-	-	5.12	-
Methyl Tert Butyl Ether	mg/kg	320	-	-	-	ND (0.16)	-
4-Methyl-2-pentanone(MIBK)	mg/kg	-	-	-	-	ND (0.48)	-
Methylene chloride	mg/kg	97	-	-	-	ND (1.0)	-
Styrene	mg/kg	260	-	-	-	ND (0.19)	-
Tert Butyl Alcohol	mg/kg	11000	-	-	-	-	-
1,1,2,2-Tetrachloroethane	mg/kg	3	-	-	-	ND (0.18)	-
Tetrachloroethene	mg/kg	5	-	-	-	ND (0.32)	-
Toluene	mg/kg	91000	-	-	-	0.236 J	-
1,2,3-Trichlorobenzene	mg/kg	-	-	-	-	ND (0.18)	-
1,2,4-Trichlorobenzene	mg/kg	820	-	-	-	ND (0.18)	-
1,1,1-Trichloroethane	mg/kg	4200	-	-	-	ND (0.16)	-
1,1,2-Trichloroethane	mg/kg	6	-	-	-	ND (0.15)	-
Trichloroethene	mg/kg	20	-	-	-	ND (0.15)	-
Trichlorofluoromethane	mg/kg	340000	-	-	-	ND (0.26)	-
Vinyl chloride	mg/kg	2	-	-	-	ND (0.21)	-
m,p-Xylene	mg/kg	170000	-	-	-	3.25	-
o-Xylene	mg/kg	170000	-	-	-	2.63	-
Xylene (total)	mg/kg	170000	-	-	-	5.88	-

Table 4-1

Hess Corporation - Former Port Reading Complex (HC-PR) - 750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Analytical Results at AOC-88 – Compressor Building

Client Sample ID:		NJ Non-Residential Direct Contact Soil	CB-SS-1	CB-SS-1	CB-SS-2	CB-SS-2	CB-SS-2
Lab Sample ID:			JB99093-11	JB99093-11T	JB99093-12	JB99093-12R	JB99093-12T
Date Sampled:			7/13/2015	7/13/2015	7/13/2015	7/13/2015	7/13/2015
Matrix:			Soil	Soil	Soil	Soil	Soil
Deptj:			0.5-1.0 ft	0.5-1.0 ft	1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft
GC/MS Volatile TIC							
Total TIC, Volatile	mg/kg	-	-	-	-	1029 J	-
Total TIC, Volatile	mg/kg	-	-	-	-	-	-
Total Alkanes	mg/kg	-	-	-	-	0	-
Total Alkanes	mg/kg	-	-	-	-	-	-
GC/MS Semi-volatiles (SW846 8270D)							
Acenaphthene	mg/kg	37000	-	-	-	1.35	-
Acenaphthylene	mg/kg	300000	-	-	-	ND (0.96)	-
2-Chlorophenol	mg/kg	2200	-	-	-	ND (1.9)	-
Anthracene	mg/kg	30000	-	-	-	0.615 J	-
4-Chloro-3-methyl phenol	mg/kg	-	-	-	-	ND (4.8)	-
Benzo(a)anthracene	mg/kg	2	-	-	-	0.693 J	-
Benzo(a)pyrene	mg/kg	0.2	-	-	-	ND (0.96)	-
2,4-Dichlorophenol	mg/kg	2100	-	-	-	ND (4.8)	-
Benzo(b)fluoranthene	mg/kg	2	-	-	-	ND (0.96)	-
2,4-Dimethylphenol	mg/kg	14000	-	-	-	ND (4.8)	-
Benzo(g,h,i)perylene	mg/kg	30000	-	-	-	ND (0.96)	-
2,4-Dinitrophenol	mg/kg	1400	-	-	-	ND (4.8)	-
Benzo(k)fluoranthene	mg/kg	23	-	-	-	ND (0.96)	-
Chrysene	mg/kg	230	-	-	-	0.732 J	-
4,6-Dinitro-o-cresol	mg/kg	68	-	-	-	ND (4.8)	-
Dibenzo(a,h)anthracene	mg/kg	0.2	-	-	-	ND (0.96)	-
Fluoranthene	mg/kg	24000	-	-	-	1.15	-
2-Methylphenol	mg/kg	3400	-	-	-	ND (1.9)	-
Fluorene	mg/kg	24000	-	-	-	1.16	-
3&4-Methylphenol	mg/kg	-	-	-	-	ND (1.9)	-
Indeno(1,2,3-cd)pyrene	mg/kg	2	-	-	-	ND (0.96)	-
2-Nitrophenol	mg/kg	-	-	-	-	ND (4.8)	-
4-Nitrophenol	mg/kg	-	-	-	-	ND (9.6)	-
Naphthalene	mg/kg	17	-	-	-	194	-
Phenanthrene	mg/kg	300000	-	-	-	4	-
Pentachlorophenol	mg/kg	10	-	-	-	ND (4.8)	-
Phenol	mg/kg	210000	-	-	-	ND (1.9)	-
Pyrene	mg/kg	18000	-	-	-	1.35	-
2,3,4,6-Tetrachlorophenol	mg/kg	-	-	-	-	ND (4.8)	-
2,4,5-Trichlorophenol	mg/kg	68000	-	-	-	ND (4.8)	-
2,4,6-Trichlorophenol	mg/kg	74	-	-	-	ND (4.8)	-
Acetophenone	mg/kg	5	-	-	-	ND (4.8)	-
Atrazine	mg/kg	2400	-	-	-	ND (1.9)	-
4-Bromophenyl phenyl ether	mg/kg	-	-	-	-	ND (1.9)	-
Butyl benzyl phthalate	mg/kg	14000	-	-	-	ND (1.9)	-
1,1'-Biphenyl	mg/kg	34000	-	-	-	0.489 J	-
Benzaldehyde	mg/kg	68000	-	-	-	ND (4.8)	-
2-Chloronaphthalene	mg/kg	-	-	-	-	ND (1.9)	-
4-Chloroaniline	mg/kg	-	-	-	-	ND (4.8)	-
Carbazole	mg/kg	96	-	-	-	ND (1.9)	-
Caprolactam	mg/kg	340000	-	-	-	ND (1.9)	-
bis(2-Chloroethoxy)methane	mg/kg	-	-	-	-	ND (1.9)	-
bis(2-Chloroethyl)ether	mg/kg	2	-	-	-	ND (1.9)	-
bis(2-Chloroisopropyl)ether	mg/kg	67	-	-	-	ND (1.9)	-
4-Chlorophenyl phenyl ether	mg/kg	-	-	-	-	ND (1.9)	-
2,4-Dinitrotoluene	mg/kg	3	-	-	-	ND (0.96)	-
2,6-Dinitrotoluene	mg/kg	3	-	-	-	ND (0.96)	-
3,3'-Dichlorobenzidine	mg/kg	4	-	-	-	ND (1.9)	-
1,4-Dioxane	mg/kg	-	-	-	-	ND (0.96)	-
Dibenzofuran	mg/kg	-	-	-	-	0.646 J	-
Di-n-butyl phthalate	mg/kg	68000	-	-	-	ND (1.9)	-
Di-n-octyl phthalate	mg/kg	27000	-	-	-	ND (1.9)	-
Diethyl phthalate	mg/kg	550000	-	-	-	ND (1.9)	-
Dimethyl phthalate	mg/kg	-	-	-	-	ND (1.9)	-
bis(2-Ethylhexyl)phthalate	mg/kg	140	-	-	-	14	-
Hexachlorobenzene	mg/kg	1	-	-	-	ND (1.9)	-
Hexachlorobutadiene	mg/kg	25	-	-	-	ND (0.96)	-
Hexachlorocyclopentadiene	mg/kg	110	-	-	-	ND (9.6)	-
Hexachloroethane	mg/kg	140	-	-	-	ND (4.8)	-
Isophorone	mg/kg	2000	-	-	-	ND (1.9)	-
2-Methylnaphthalene	mg/kg	2400	-	-	-	26.8	-
2-Nitroaniline	mg/kg	23000	-	-	-	ND (4.8)	-
3-Nitroaniline	mg/kg	-	-	-	-	ND (4.8)	-
4-Nitroaniline	mg/kg	-	-	-	-	ND (4.8)	-
Nitrobenzene	mg/kg	340	-	-	-	ND (1.9)	-
N-Nitroso-di-n-propylamine	mg/kg	0.3	-	-	-	ND (1.9)	-
N-Nitrosodiphenylamine	mg/kg	390	-	-	-	ND (4.8)	-
1,2,4,5-Tetrachlorobenzene	mg/kg	-	-	-	-	ND (4.8)	-

Table 4-1  
Hess Corporation - Former Port Reading Complex (HC-PR) - 750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Analytical Results at AOC-88 – Compressor Building

Client Sample ID:		NJ Non-Residential Direct Contact Soil	CB-SS-1	CB-SS-1	CB-SS-2	CB-SS-2	CB-SS-2
Lab Sample ID:			JB99093-11	JB99093-11T	JB99093-12	JB99093-12R	JB99093-12T
Date Sampled:			7/13/2015	7/13/2015	7/13/2015	7/13/2015	7/13/2015
Matrix:			Soil	Soil	Soil	Soil	Soil
Deptj:			0.5-1.0 ft	0.5-1.0 ft	1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft
GC/MS Semi-volatile TIC							
Total TIC, Semi-Volatile	mg/kg	-	-	-	-	1530 J	-
Total Alkanes	mg/kg	-	-	-	-	-	-
Total Alkanes	mg/kg	-	-	-	-	312 J	-
GC Semi-volatiles (NJDEP EPH)							
EPH (C9-C28)	mg/kg	-	9890	-	61100	-	-
EPH (>C28-C40)	mg/kg	-	3700	-	46600	-	-
Total EPH (C9-C40)	mg/kg	-	13600	-	108000	-	-
C10-C12 Aromatics	mg/kg	-	-	44.2	-	-	5030
C12-C16 Aromatics	mg/kg	-	-	556	-	-	384
C16-C21 Aromatics	mg/kg	-	-	1310	-	-	975
C21-C36 Aromatics	mg/kg	-	-	563	-	-	6810
Total Aromatics	mg/kg	-	-	2480	-	-	13200
C9-C12 Aliphatics	mg/kg	-	-	76	-	-	315
C12-C16 Aliphatics	mg/kg	-	-	1170	-	-	415
C16-C21 Aliphatics	mg/kg	-	-	1230	-	-	2290
C21-C40 Aliphatics	mg/kg	-	-	4160	-	-	46300
Total Aliphatics	mg/kg	-	-	6640	-	-	49300
Total EPH	mg/kg	-	-	9110	-	-	62500
GC Semi-volatiles (SW846 8082A)							
Aroclor 1016	mg/kg	1	-	-	-	ND (0.015)	-
Aroclor 1221	mg/kg	1	-	-	-	ND (0.028)	-
Aroclor 1232	mg/kg	1	-	-	-	ND (0.016)	-
Aroclor 1242	mg/kg	1	-	-	-	ND (0.022)	-
Aroclor 1248	mg/kg	1	-	-	-	ND (0.015)	-
Aroclor 1254	mg/kg	1	-	-	-	ND (0.021)	-
Aroclor 1260	mg/kg	1	-	-	-	ND (0.020)	-
Aroclor 1268	mg/kg	1	-	-	-	ND (0.015)	-
Aroclor 1262	mg/kg	1	-	-	-	ND (0.014)	-
Metals Analysis							
Aluminum	mg/kg	NA	-	-	-	10800	-
Antimony	mg/kg	450	-	-	-	<5.6 <sup>b</sup>	-
Arsenic	mg/kg	19	-	-	-	20.7 <sup>b</sup>	-
Barium	mg/kg	59000	-	-	-	806	-
Beryllium	mg/kg	140	-	-	-	1	-
Cadmium	mg/kg	78	-	-	-	24.2	-
Calcium	mg/kg	-	-	-	-	21300	-
Chromium	mg/kg	-	-	-	-	169 <sup>b</sup>	-
Chromium, Hexavalent	mg/kg	-	-	-	-	-	-
Cobalt	mg/kg	590	-	-	-	12.8	-
Copper	mg/kg	45000	-	-	-	753 <sup>b</sup>	-
Iron	mg/kg	-	-	-	-	74800	-
Lead	mg/kg	800	-	-	-	319 <sup>b</sup>	-
Magnesium	mg/kg	-	-	-	-	3350	-
Manganese	mg/kg	5900	-	-	-	726 <sup>b</sup>	-
Mercury	mg/kg	65	-	-	-	8.4	-
Nickel	mg/kg	23000	-	-	-	198	-
Potassium	mg/kg	-	-	-	-	<1400	-
Selenium	mg/kg	5700	-	-	-	<5.6 <sup>b</sup>	-
Silver	mg/kg	5700	-	-	-	2.5 <sup>b</sup>	-
Sodium	mg/kg	-	-	-	-	<1400	-
Sulfur	mg/kg	-	-	-	-	-	-
Thallium	mg/kg	79	-	-	-	<2.8 <sup>b</sup>	-
Vanadium	mg/kg	1100	-	-	-	42.7	-
Zinc	mg/kg	110000	-	-	-	5600 <sup>b</sup>	-



Client Sample ID:		NJ Non-Residential Direct Contact Soil	CB-SS-1	CB-SS-1	CB-SS-2	CB-SS-2	CB-SS-2
Lab Sample ID:			JB99093-11	JB99093-11T	JB99093-12	JB99093-12R	JB99093-12T
Date Sampled:			7/13/2015	7/13/2015	7/13/2015	7/13/2015	7/13/2015
Matrix:			Soil	Soil	Soil	Soil	Soil
Deptj:			0.5-1.0 ft	0.5-1.0 ft	1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft
General Chemistry							
Iron, Ferrous	%	-	-	-	-	-	-
Nitrogen, Ammonia	mg/kg	-	-	-	-	-	-
Redox Potential Vs H2	mv	-	-	-	-	-	-
Solids, Percent	%	-	91.2	-	69	-	-
Solids, Percent	%	-	-	-	-	-	-
Sulfide Screen		-	-	-	-	-	-
Sulfide, Neutral Extraction	mg/kg	-	-	-	-	-	-
Total Organic Carbon	mg/kg	-	-	-	-	-	-
pH	su	-	-	-	-	-	-
All results in mg/kg unless otherwise noted.							
mg/kg	milligrams per kilogram						
J	Estimated Value						
NS	Not Sampled						
ND	Not Detected						
NA	Not Analyzed						
( )	Method Detection Limit						
B	Compound Found in Blank						
**	Health based standard defaults to soil saturation limit						
<sup>b</sup>	Result is from 2nd run						
<sup>a</sup>	Result is from 2nd run						
	Exceeds NJDEP Non-Residential Soil Remediation Standard						

Table 4-1

Client Sample ID:		NJ Non-Residential Direct Contact Soil	FCC-SS-1	FCC-SS-2	FCC-SS-2	FCC-SS-2	FCC-SS-2	FCC-SS-2	FCC-SS-3	FCC-SS-3	FCC-SS-3	FCC-SS-4	FCC-SS-4R
Lab Sample ID:	JB99097-3		JB99093-13	JB99093-13R	JB99093-13U	JB99093-13UR	JC2396-2	JB99097-4	JB99097-4R	JB99097-4RT	JB99093-10	JB99944-3	
Date Sampled:	7/14/2015		7/13/2015	7/13/2015	7/13/2015	7/13/2015	8/26/2015	7/14/2015	7/14/2015	7/14/2015	7/13/2015	7/23/2015	
Matrix:			Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	
Depth:			1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft	1.0-1.5 ft	1.0-1.5 ft
GC/MS Volatiles (SW846 8260C)													
Acetone	mg/kg	NA	0.0256	0.0181	-	-	-	-	0.0246	-	-	0.0453	ND (0.31)
Acrolein	mg/kg	1	-	-	-	-	-	-	-	-	-	-	-
Acrylonitrile	mg/kg	3	-	-	-	-	-	-	-	-	-	-	-
Benzene	mg/kg	5	-	-	-	-	-	-	-	-	-	-	-
Benzene	mg/kg	5	ND (0.00013)	0.007	-	-	-	-	ND (0.00013)	-	-	ND (0.00015)	0.0984
Bromochloromethane	mg/kg	-	ND (0.00031)	ND (0.00040)	-	-	-	-	ND (0.00030)	-	-	ND (0.00035)	ND (0.043)
Bromodichloromethane	mg/kg	3	ND (0.00016)	ND (0.00020)	-	-	-	-	ND (0.00015)	-	-	ND (0.00018)	ND (0.022)
Bromoform	mg/kg	280	ND (0.00024)	ND (0.00031)	-	-	-	-	ND (0.00023)	-	-	ND (0.00027)	ND (0.033)
Bromomethane	mg/kg	59	ND (0.00037)	ND (0.00048)	-	-	-	-	ND (0.00036)	-	-	ND (0.00041)	ND (0.050)
2-Butanone (MEK)	mg/kg	44000	ND (0.0019)	ND (0.0025)	-	-	-	-	ND (0.0019)	-	-	0.0117	ND (0.26)
Carbon disulfide	mg/kg	110000	0.00029 J	0.00060 J	-	-	-	-	0.00081 J	-	-	0.0029	ND (0.032)
Carbon tetrachloride	mg/kg	2	ND (0.00023)	ND (0.00030)	-	-	-	-	ND (0.00023)	-	-	ND (0.00026)	ND (0.032)
Chlorobenzene	mg/kg	7400	ND (0.00016)	ND (0.00020)	-	-	-	-	ND (0.00015)	-	-	ND (0.00018)	0.519
Chloroethane	mg/kg	1100	ND (0.00048)	ND (0.00063)	-	-	-	-	ND (0.00047)	-	-	ND (0.00054)	ND (0.067)
2-Chloroethyl vinyl ether	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Chloroform	mg/kg	2	ND (0.00015)	ND (0.00019)	-	-	-	-	ND (0.00015)	-	-	ND (0.00017)	ND (0.021)
Chloromethane	mg/kg	12	ND (0.00026)	ND (0.00034)	-	-	-	-	ND (0.00026)	-	-	ND (0.00030)	ND (0.036)
Cyclohexane	mg/kg	-	ND (0.00032)	ND (0.00041)	-	-	-	-	ND (0.00031)	-	-	ND (0.00036)	0.496
1,2-Dibromo-3-chloropropane	mg/kg	0.2	ND (0.00055)	ND (0.00071)	-	-	-	-	ND (0.00054)	-	-	ND (0.00062)	ND (0.075)
Dibromochloromethane	mg/kg	8	ND (0.00021)	ND (0.00027)	-	-	-	-	ND (0.00020)	-	-	ND (0.00023)	ND (0.028)
1,2-Dibromoethane	mg/kg	0.04	ND (0.00013)	ND (0.00017)	-	-	-	-	ND (0.00013)	-	-	ND (0.00015)	ND (0.018)
1,2-Dichlorobenzene	mg/kg	59000	ND (0.00012)	ND (0.00016)	-	-	-	-	ND (0.00012)	-	-	ND (0.00014)	3.74
1,3-Dichlorobenzene	mg/kg	59000	ND (0.00016)	ND (0.00021)	-	-	-	-	ND (0.00015)	-	-	ND (0.00018)	0.426
1,4-Dichlorobenzene	mg/kg	13	ND (0.00023)	ND (0.00029)	-	-	-	-	ND (0.00022)	-	-	ND (0.00025)	0.815
Dichlorodifluoromethane	mg/kg	230000	ND (0.00036)	ND (0.00047)	-	-	-	-	ND (0.00036)	-	-	ND (0.00041)	ND (0.050)
1,1-Dichloroethane	mg/kg	24	ND (0.00014)	ND (0.00018)	-	-	-	-	ND (0.00014)	-	-	ND (0.00016)	ND (0.020)
1,2-Dichloroethane	mg/kg	3	ND (0.00013)	ND (0.00018)	-	-	-	-	ND (0.00013)	-	-	ND (0.00015)	ND (0.019)
1,1-Dichloroethene	mg/kg	150	ND (0.00059)	ND (0.00077)	-	-	-	-	ND (0.00058)	-	-	ND (0.00067)	ND (0.082)
cis-1,2-Dichloroethene	mg/kg	560	ND (0.00078)	ND (0.0010)	-	-	-	-	0.0012	-	-	ND (0.00088)	ND (0.11)
trans-1,2-Dichloroethene	mg/kg	720	ND (0.00060)	ND (0.00078)	-	-	-	-	ND (0.00058)	-	-	ND (0.00067)	ND (0.082)
1,2-Dichloropropane	mg/kg	5	ND (0.00024)	ND (0.00031)	-	-	-	-	ND (0.00023)	-	-	ND (0.00027)	ND (0.033)
cis-1,3-Dichloropropene	mg/kg	7	ND (0.00012)	ND (0.00015)	-	-	-	-	ND (0.00012)	-	-	ND (0.00013)	ND (0.016)
trans-1,3-Dichloropropene	mg/kg	7	ND (0.00018)	ND (0.00023)	-	-	-	-	ND (0.00017)	-	-	ND (0.00020)	ND (0.024)
Ethylbenzene	mg/kg	110000	ND (0.00016)	ND (0.00021)	-	-	-	-	ND (0.00016)	-	-	0.00041 J	1.12
Freon 113	mg/kg	-	ND (0.00045)	ND (0.00059)	-	-	-	-	ND (0.00044)	-	-	ND (0.00051)	ND (0.062)
2-Hexanone	mg/kg	-	ND (0.0013)	ND (0.0018)	-	-	-	-	ND (0.0013)	-	-	ND (0.0015)	ND (0.19)
Isopropylbenzene	mg/kg	-	ND (0.00011)	ND (0.00014)	-	-	-	-	ND (0.00010)	-	-	ND (0.00012)	2.63
Methyl Acetate	mg/kg	NA	ND (0.00086)	ND (0.0011)	-	-	-	-	ND (0.00085)	-	-	ND (0.00097)	ND (0.12)
Methylcyclohexane	mg/kg	-	ND (0.00023)	ND (0.00030)	-	-	-	-	ND (0.00022)	-	-	ND (0.00026)	9.76
Methyl Tert Butyl Ether	mg/kg	320	ND (0.00015)	ND (0.00020)	-	-	-	-	ND (0.00015)	-	-	ND (0.00017)	ND (0.021)
4-Methyl-2-pentanone(MIBK)	mg/kg	-	ND (0.00046)	ND (0.00060)	-	-	-	-	ND (0.00045)	-	-	ND (0.00052)	ND (0.063)
Methylene chloride	mg/kg	97	ND (0.00099)	ND (0.0013)	-	-	-	-	ND (0.00097)	-	-	ND (0.0011)	ND (0.14)
Styrene	mg/kg	260	ND (0.00018)	ND (0.00023)	-	-	-	-	ND (0.00018)	-	-	ND (0.00020)	ND (0.025)
Tert Butyl Alcohol	mg/kg	11000	ND (0.0027)	ND (0.0035)	-	-	-	-	ND (0.0026)	-	-	ND (0.0030)	ND (0.37)
1,1,2,2-Tetrachloroethane	mg/kg	3	ND (0.00018)	ND (0.00023)	-	-	-	-	ND (0.00017)	-	-	ND (0.00020)	ND (0.024)
Tetrachloroethene	mg/kg	5	ND (0.00030)	ND (0.00039)	-	-	-	-	ND (0.00030)	-	-	ND (0.00034)	ND (0.042)
Toluene	mg/kg	91000	ND (0.00021)	0.0012 J	-	-	-	-	0.00025 J	-	-	0.0057	0.341
1,2,3-Trichlorobenzene	mg/kg	-	ND (0.00018)	ND (0.00023)	-	-	-	-	ND (0.00017)	-	-	ND (0.00020)	ND (0.024)
1,2,4-Trichlorobenzene	mg/kg	820	ND (0.00017)	ND (0.00022)	-	-	-	-	ND (0.00017)	-	-	ND (0.00019)	ND (0.023)
1,1,1-Trichloroethane	mg/kg	4200	ND (0.00015)	ND (0.00019)	-	-	-	-	ND (0.00015)	-	-	ND (0.00017)	ND (0.021)
1,1,2-Trichloroethane	mg/kg	6	ND (0.00015)	ND (0.00019)	-	-	-	-	ND (0.00014)	-	-	ND (0.00017)	ND (0.020)
Trichloroethene	mg/kg	20	ND (0.00015)	ND (0.00019)	-	-	-	-	ND (0.00014)	-	-	ND (0.00017)	ND (0.020)
Trichlorofluoromethane	mg/kg	340000	ND (0.00025)	ND (0.00033)	-	-	-	-	ND (0.00025)	-	-	ND (0.00028)	ND (0.034)
Vinyl chloride	mg/kg	2	ND (0.00020)	ND (0.00026)	-	-	-	-	ND (0.00019)	-	-	ND (0.00022)	ND (0.027)
m,p-Xylene	mg/kg	170000	ND (0.00035)	0.0034	-	-	-	-	ND (0.00035)	-	-	0.0017	13.7
o-Xylene	mg/kg	170000	ND (0.00028)	0.0035	-	-	-	-	ND (0.00027)	-	-	0.0011	6.7
Xylene (total)	mg/kg	170000	ND (0.00028)	0.0069	-	-	-	-	ND (0.00027)	-	-	0.0028	20.4
GC/MS Volatile TIC													
Total TIC, Volatile	mg/kg	-	0	0.2144 J	-	-	-	-	0	-	-	0	112.7 J
Total TIC, Volatile	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-
Total Alkanes	mg/kg	-	0	0	-	-	-	-	0	-	-	0	26.1 J
Total Alkanes	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-

Table 4-1  
Hess Corporation - Former Port Reading Complex (HC-PR) - 750 Cliff Road, Port Reading,  
New Jersey Summary of Soil Analytical Results at AOC-89 – Cracking Tower

Client Sample ID:		NJ Non-Residential Direct Contact Soil	FCC-SS-1	FCC-SS-2	FCC-SS-2	FCC-SS-2	FCC-SS-2	FCC-SS-2	FCC-SS-2	FCC-SS-3	FCC-SS-3	FCC-SS-3	FCC-SS-4	FCC-SS-4R
Lab Sample ID:			JB99097-3	JB99093-13	JB99093-13R	JB99093-13U	JB99093-13UR	JC2396-2	JB99097-4	JB99097-4R	JB99097-4RT	JB99093-10	JB99944-3	
Date Sampled:			7/14/2015	7/13/2015	7/13/2015	7/13/2015	7/13/2015	8/26/2015	7/14/2015	7/14/2015	7/14/2015	7/13/2015	7/23/2015	
Matrix:			Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	
Depth:			1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft	1.0-1.5 ft	1.0-1.5 ft
GC/MS Semi-volatiles (SW846 8270D)														
Acenaphthene	mg/kg	37000	ND (0.036)	ND (0.039)	-	-	-	-	ND (0.036)	-	-	0.0381	55.1	
Acenaphthylene	mg/kg	300000	ND (0.036)	ND (0.039)	-	-	-	-	ND (0.036)	-	-	ND (0.038)	ND (0.18)	
2-Chlorophenol	mg/kg	2200	ND (0.072)	ND (0.079)	-	-	-	-	ND (0.072)	-	-	ND (0.076)	ND (0.37)	
Anthracene	mg/kg	30000	ND (0.036)	ND (0.039)	-	-	-	-	ND (0.036)	-	-	0.0604	45	
4-Chloro-3-methyl phenol	mg/kg	-	ND (0.18)	ND (0.20)	-	-	-	-	ND (0.18)	-	-	ND (0.19)	ND (0.92)	
Benzo(a)anthracene	mg/kg	2	ND (0.036)	0.0312 J	-	-	-	-	ND (0.036)	-	-	0.0453	6.26	
Benzo(a)pyrene	mg/kg	0.2	ND (0.036)	0.046	-	-	-	-	ND (0.036)	-	-	0.0184 J	1.39	
2,4-Dichlorophenol	mg/kg	2100	ND (0.18)	ND (0.20)	-	-	-	-	ND (0.18)	-	-	ND (0.19)	ND (0.92)	
Benzo(b)fluoranthene	mg/kg	2	ND (0.036)	0.0359 J	-	-	-	-	ND (0.036)	-	-	ND (0.038)	0.706	
2,4-Dimethylphenol	mg/kg	14000	ND (0.18)	ND (0.20)	-	-	-	-	ND (0.18)	-	-	ND (0.19)	ND (0.92)	
Benzo(g,h,i)perylene	mg/kg	30000	ND (0.036)	0.0292 J	-	-	-	-	ND (0.036)	-	-	ND (0.038)	0.379	
2,4-Dinitrophenol	mg/kg	1400	ND (0.18)	ND (0.20)	-	-	-	-	ND (0.18)	-	-	ND (0.19)	ND (0.92)	
Benzo(k)fluoranthene	mg/kg	23	ND (0.036)	ND (0.039)	-	-	-	-	ND (0.036)	-	-	ND (0.038)	0.111 J	
Chrysene	mg/kg	230	ND (0.036)	0.0889	-	-	-	-	ND (0.036)	-	-	0.159	12.9	
4,6-Dinitro-o-cresol	mg/kg	68	ND (0.18)	ND (0.20)	-	-	-	-	ND (0.18)	-	-	ND (0.19)	ND (0.92)	
Dibenzo(a,h)anthracene	mg/kg	0.2	ND (0.036)	ND (0.039)	-	-	-	-	ND (0.036)	-	-	ND (0.038)	0.279	
Fluoranthene	mg/kg	24000	ND (0.036)	ND (0.039)	-	-	-	-	ND (0.036)	-	-	0.0564	9.1	
2-Methylphenol	mg/kg	3400	ND (0.072)	ND (0.079)	-	-	-	-	ND (0.072)	-	-	ND (0.076)	ND (0.37)	
Fluorene	mg/kg	24000	ND (0.036)	ND (0.039)	-	-	-	-	ND (0.036)	-	-	0.0409	67.5	
3,8,4-Methylphenol	mg/kg	-	ND (0.072)	ND (0.079)	-	-	-	-	ND (0.072)	-	-	ND (0.076)	ND (0.37)	
Indeno(1,2,3-cd)pyrene	mg/kg	2	ND (0.036)	ND (0.039)	-	-	-	-	ND (0.036)	-	-	ND (0.038)	0.218	
2-Nitrophenol	mg/kg	-	ND (0.18)	ND (0.20)	-	-	-	-	ND (0.18)	-	-	ND (0.19)	ND (0.92)	
4-Nitrophenol	mg/kg	-	ND (0.36)	ND (0.39)	-	-	-	-	ND (0.36)	-	-	ND (0.38)	ND (1.8)	
Naphthalene	mg/kg	17	ND (0.036)	0.0199 J	-	-	-	-	ND (0.036)	-	-	ND (0.038)	106	
Phenanthrene	mg/kg	300000	ND (0.036)	0.152	-	-	-	-	ND (0.036)	-	-	0.193	198	
Pentachlorophenol	mg/kg	10	ND (0.18)	ND (0.20)	-	-	-	-	ND (0.18)	-	-	ND (0.19)	ND (0.92)	
Phenol	mg/kg	210000	ND (0.072)	ND (0.079)	-	-	-	-	ND (0.072)	-	-	0.0451 J	ND (0.37)	
Pyrene	mg/kg	18000	ND (0.036)	0.123	-	-	-	-	ND (0.036)	-	-	0.527	69.9	
2,3,4,6-Tetrachlorophenol	mg/kg	-	ND (0.18)	ND (0.20)	-	-	-	-	ND (0.18)	-	-	ND (0.19)	ND (0.92)	
2,4,5-Trichlorophenol	mg/kg	68000	ND (0.18)	ND (0.20)	-	-	-	-	ND (0.18)	-	-	ND (0.19)	ND (0.92)	
2,4,6-Trichlorophenol	mg/kg	74	ND (0.18)	ND (0.20)	-	-	-	-	ND (0.18)	-	-	ND (0.19)	ND (0.92)	
Acetophenone	mg/kg	5	ND (0.18)	ND (0.20)	-	-	-	-	ND (0.18)	-	-	ND (0.19)	ND (0.92)	
Atrazine	mg/kg	2400	ND (0.072)	ND (0.079)	-	-	-	-	ND (0.072)	-	-	ND (0.076)	ND (0.37)	
4-Bromophenyl phenyl ether	mg/kg	-	ND (0.072)	ND (0.079)	-	-	-	-	ND (0.072)	-	-	ND (0.076)	ND (0.37)	
Butyl benzyl phthalate	mg/kg	14000	ND (0.072)	ND (0.079)	-	-	-	-	ND (0.072)	-	-	ND (0.076)	ND (0.37)	
1,1'-Biphenyl	mg/kg	34000	ND (0.072)	ND (0.079)	-	-	-	-	ND (0.072)	-	-	ND (0.076)	ND (0.37)	
Benzaldehyde	mg/kg	68000	ND (0.18)	ND (0.20)	-	-	-	-	ND (0.18)	-	-	ND (0.19)	ND (0.92)	
2-Chloronaphthalene	mg/kg	-	ND (0.072)	ND (0.079)	-	-	-	-	ND (0.072)	-	-	ND (0.076)	ND (0.37)	
4-Chloroaniline	mg/kg	-	ND (0.18)	ND (0.20)	-	-	-	-	ND (0.18)	-	-	ND (0.19)	ND (0.92)	
Carbazole	mg/kg	96	ND (0.072)	ND (0.079)	-	-	-	-	ND (0.072)	-	-	ND (0.076)	ND (0.37)	
Caprolactam	mg/kg	340000	ND (0.072)	ND (0.079)	-	-	-	-	ND (0.072)	-	-	ND (0.076)	ND (0.37)	
bis(2-Chloroethoxy)methane	mg/kg	-	ND (0.072)	ND (0.079)	-	-	-	-	ND (0.072)	-	-	ND (0.076)	ND (0.37)	
bis(2-Chloroethyl)ether	mg/kg	2	ND (0.072)	ND (0.079)	-	-	-	-	ND (0.072)	-	-	ND (0.076)	ND (0.37)	
bis(2-Chloroisopropyl)ether	mg/kg	67	ND (0.072)	ND (0.079)	-	-	-	-	ND (0.072)	-	-	ND (0.076)	ND (0.37)	
4-Chlorophenyl phenyl ether	mg/kg	-	ND (0.072)	ND (0.079)	-	-	-	-	ND (0.072)	-	-	ND (0.076)	ND (0.37)	
2,4-Dinitrotoluene	mg/kg	3	ND (0.036)	ND (0.039)	-	-	-	-	ND (0.036)	-	-	ND (0.038)	ND (0.18)	
2,6-Dinitrotoluene	mg/kg	3	ND (0.036)	ND (0.039)	-	-	-	-	ND (0.036)	-	-	ND (0.038)	ND (0.18)	
3,3'-Dichlorobenzidine	mg/kg	4	ND (0.072)	ND (0.079)	-	-	-	-	ND (0.072)	-	-	ND (0.076)	ND (0.37)	
1,4-Dioxane	mg/kg	-	ND (0.036)	ND (0.039)	-	-	-	-	ND (0.036)	-	-	ND (0.038)	ND (0.18)	
Dibenzofuran	mg/kg	-	ND (0.072)	ND (0.079)	-	-	-	-	ND (0.072)	-	-	ND (0.076)	20.4	
Di-n-butyl phthalate	mg/kg	68000	ND (0.072)	ND (0.079)	-	-	-	-	ND (0.072)	-	-	ND (0.076)	ND (0.37)	
Di-n-octyl phthalate	mg/kg	27000	ND (0.072)	ND (0.079)	-	-	-	-	ND (0.072)	-	-	ND (0.076)	ND (0.37)	
Diethyl phthalate	mg/kg	550000	ND (0.072)	ND (0.079)	-	-	-	-	ND (0.072)	-	-	ND (0.076)	ND (0.37)	
Dimethyl phthalate	mg/kg	-	ND (0.072)	ND (0.079)	-	-	-	-	ND (0.072)	-	-	ND (0.076)	ND (0.37)	
bis(2-Ethylhexyl)phthalate	mg/kg	140	ND (0.072)	ND (0.079)	-	-	-	-	ND (0.072)	-	-	0.321	0.826	
Hexachlorobenzene	mg/kg	1	ND (0.072)	ND (0.079)	-	-	-	-	ND (0.072)	-	-	ND (0.076)	ND (0.37)	
Hexachlorobutadiene	mg/kg	25	ND (0.036)	ND (0.039)	-	-	-	-	ND (0.036)	-	-	ND (0.038)	ND (0.18)	
Hexachlorocyclopentadiene	mg/kg	110	ND (0.36)	ND (0.39)	-	-	-	-	ND (0.36)	-	-	ND (0.38)	ND (1.8)	
Hexachloroethane	mg/kg	140	ND (0.18)	ND (0.20)	-	-	-	-	ND (0.18)	-	-	ND (0.19)	ND (0.92)	
Isophorone	mg/kg	2000	ND (0.072)	ND (0.079)	-	-	-	-	ND (0.072)	-	-	ND (0.076)	ND (0.37)	
2-Methylnaphthalene	mg/kg	2400	ND (0.072)	0.0426 J	-	-	-	-	ND (0.072)	-	-	0.0552 J	535	
2-Nitroaniline	mg/kg	23000	ND (0.18)	ND (0.20)	-	-	-	-	ND (0.18)	-	-	ND (0.19)	ND (0.92)	
3-Nitroaniline	mg/kg	-	ND (0.18)	ND (0.20)	-	-	-	-	ND (0.18)	-	-	ND (0.19)	ND (0.92)	
4-Nitroaniline	mg/kg	-	ND (0.18)	ND (0.20)	-	-	-	-	ND (0.18)	-	-	ND (0.19)	ND (0.92)	
Nitrobenzene	mg/kg	340	ND (0.072)	ND (0.079)	-	-	-	-	ND (0.072)	-	-	ND (0.076)	ND (0.37)	
N-Nitroso-di-n-propylamine	mg/kg	0.3	ND (0.072)	ND (0.079)	-	-	-	-	ND (0.072)	-	-	ND (0.076)	ND (0.37)	
N-Nitrosodiphenylamine	mg/kg	390	ND (0.18)	ND (0.20)	-	-	-	-	ND (0.18)	-	-	ND (0.19)	ND (0.92)	
1,2,4,5-Tetrachlorobenzene	mg/kg	-	ND (0.18)	ND (0.20)	-	-	-	-	ND (0.18)	-	-	ND (0.19)	ND (0.92)	
GC/MS Semi-volatile TIC														
Total TIC, Semi-Volatile	mg/kg	-	0.89 J	0.36 J	-	-	-	-	1.73 J	-	-	13.11 J	591 J	
Total Alkanes	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	
Total Alkanes	mg/kg	-	0	0	-	-	-	-	0	-	-	5.08 J	0	
GC Volatiles (SW846 8015C)														
TPH-GRO (C6-C10)	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	
GC Semi-volatiles (NJDEP EPH)														
EPH (C9-C28)	mg/kg	-	-	-	68.4	-	-	-	-	-	-	-	-	
EPH (>C28-C40)	mg/kg	-	-	-	57.9	-	-	-	-	-	-	-	-	
Total EPH (C9-C40)	mg/kg	-	-	-	126	-	-	-	-	-	-	-	-	

Table 4-1

Client Sample ID:		NJ Non-Residential Direct Contact Soil	FCC-SS-1	FCC-SS-2	FCC-SS-2	FCC-SS-2	FCC-SS-2	FCC-SS-2	FCC-SS-2	FCC-SS-3	FCC-SS-3	FCC-SS-3	FCC-SS-4	FCC-SS-4R
Lab Sample ID:			JB99097-3	JB99093-13	JB99093-13R	JB99093-13U	JB99093-13UR	JC2396-2	JB99097-4	JB99097-4R	JB99097-4RT	JB99093-10	JB99944-3	
Date Sampled:			7/14/2015	7/13/2015	7/13/2015	7/13/2015	7/13/2015	8/26/2015	7/14/2015	7/14/2015	7/14/2015	7/13/2015	7/23/2015	
Matrix:			Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	
Depth:			1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft	1.0-1.5 ft	1.0-1.5 ft	
Metals Analysis														
Aluminum	mg/kg	NA	9780	40200	-	-	-	-	11900	-	-	5540	4090	
Antimony	mg/kg	450	<2.1	10.7	-	-	-	-	<2.3	-	-	<2.4	<2.2	
Arsenic	mg/kg	19	5.1	129	-	-	-	-	5.7	-	-	<2.4	9.5	
Barium	mg/kg	59000	63.1	64.5	-	-	-	-	79.2	-	-	33.4	24.7	
Beryllium	mg/kg	140	0.61	0.35	-	-	-	-	0.73	-	-	<0.24	0.3	
Cadmium	mg/kg	78	<0.53	<1.2 <sup>b</sup>	-	-	-	-	<0.57	-	-	<0.59	3.6	
Calcium	mg/kg	-	1860	70300	-	-	-	-	2540	-	-	46200	2350	
Chromium	mg/kg	-	18.7	263	-	-	-	-	22.3	-	-	7.2	92.9	
Chromium, Hexavalent	mg/kg	-	-	-	-	2.9	2.8	0.45	-	<0.45	<0.45	-	-	
Cobalt	mg/kg	590	7.1	13.1	-	-	-	-	9.4	-	-	<5.9	5.4	
Copper	mg/kg	45000	19.5	17.7	-	-	-	-	24.7	-	-	58.7	39	
Iron	mg/kg	-	20000	6800	-	-	-	-	21600	-	-	12400	14900	
Lead	mg/kg	800	17.5	99.8	-	-	-	-	22.4	-	-	16	69.6	
Magnesium	mg/kg	-	3580	7940	-	-	-	-	4250	-	-	4530	1440	
Manganese	mg/kg	5900	270	104	-	-	-	-	295	-	-	140	98.7	
Mercury	mg/kg	65	0.038	<0.035	-	-	-	-	<0.035	-	-	<0.037	0.3	
Nickel	mg/kg	23000	16.4	285	-	-	-	-	22.7	-	-	7.4	19.1	
Potassium	mg/kg	-	1690	<1200	-	-	-	-	2140	-	-	<1200	<1100	
Selenium	mg/kg	5700	<2.1	<2.4	-	-	-	-	<2.3	-	-	<2.4	<2.2	
Silver	mg/kg	5700	<0.53	<1.2 <sup>b</sup>	-	-	-	-	<0.57	-	-	<0.59	0.59	
Sodium	mg/kg	-	<1100	1430	-	-	-	-	<1100	-	-	<1200	<1100	
Sulfur	mg/kg	-	-	-	-	-	-	-	-	-	-	-	-	
Thallium	mg/kg	79	<1.1	<1.2	-	-	-	-	<1.1	-	-	<1.2	<1.1	
Vanadium	mg/kg	1100	24.7	331	-	-	-	-	28.9	-	-	31.6	25.2	
Zinc	mg/kg	110000	41	82	-	-	-	-	67.6	-	-	163	2170	
General Chemistry														
Iron, Ferrous	%													
Nitrogen, Ammonia	mg/kg	-	5.6	11.3	-	-	-	-	-	-	0.63 <sup>c</sup>	3.4	20.4	
Redox Potential Vs H2	mv	-	-	-	-	369	-	130	8.3	-	-	-	-	
Solids, Percent	%	-	90.5	83.1	-	-	-	92.3	-	541	-	84.9	-	
Solids, Percent	%	-	-	-	-	-	-	-	89.1	-	-	-	88.4	
Sulfide, Screen	-	-	-	-	-	-	-	-	-	-	NEGATIVE <sup>d</sup>	-	-	
Sulfide, Neutral Extraction	mg/kg	-	<4.4	<4.7	-	-	-	-	<4.5	-	-	<4.7	4.4	
Total Organic Carbon	mg/kg	-	-	-	-	-	-	-	-	-	2150	-	-	
pH	su	-	7.03	11.48	-	11.18	-	10.98	8.68	8.35	-	11.2	7.98	
All results in mg/kg unless otherwise noted.														
mg/kg	milligrams per kilogram													
J	Estimated Value													
NS	Not Sampled													
ND	Not Detected													
NA	Not Analyzed													
( )	Method Detection Limit													
B	Compound Found in Blank													
**	Health based standard defaults to soil saturation limit													
<sup>b</sup>	Result is from 2nd run													
<sup>a</sup>	Result is from 2nd run													
	Exceeds NJDEP Non-Residential Soil Remediation Standard													

Table 4-1  
Hess Corporation - Former Port Reading Complex (HC-PR) - 750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Sample Results at AOC 90 - Former Drum Storage Compound

Client Sample ID:		NJ Non-Residential Direct Contact Soil	DSQC-SS-1	DSQC-SS-1	DSQC-SS-1	DSQC-SS-1	DSQC-SS-2
Lab Sample ID:			JB98904-1	JB98904-1R	JB98904-1T	JB98904-1TU	JB98904-2
Date Sampled:			7/9/2015	7/9/2015	7/9/2015	7/9/2015	7/9/2015
Matrix:			Soil	Soil	Soil	Soil	Soil
Depth:			2.5-3.0 ft	2.5-3.0 ft	2.5-3.0 ft	2.5-3.0 ft	2.0-2.5 ft
GC/MS Volatiles (SW846 8260C)							
Acetone	mg/kg	NA	-	0.0404	-	-	-
Benzene	mg/kg	5	-	ND (0.00018)	-	-	-
Bromochloromethane	mg/kg	-	-	ND (0.00041)	-	-	-
Bromodichloromethane	mg/kg	3	-	ND (0.00021)	-	-	-
Bromoform	mg/kg	280	-	ND (0.00031)	-	-	-
Bromomethane	mg/kg	59	-	ND (0.00048)	-	-	-
2-Butanone (MEK)	mg/kg	44000	-	ND (0.0025)	-	-	-
Carbon disulfide	mg/kg	110000	-	ND (0.00030)	-	-	-
Carbon tetrachloride	mg/kg	2	-	ND (0.00031)	-	-	-
Chlorobenzene	mg/kg	7400	-	ND (0.00021)	-	-	-
Chloroethane	mg/kg	1100	-	ND (0.00064)	-	-	-
Chloroform	mg/kg	2	-	ND (0.00020)	-	-	-
Chloromethane	mg/kg	12	-	ND (0.00035)	-	-	-
Cyclohexane	mg/kg	-	-	0.0102	-	-	-
1,2-Dibromo-3-chloropropane	mg/kg	0.2	-	ND (0.00072)	-	-	-
Dibromochloromethane	mg/kg	8	-	ND (0.00027)	-	-	-
1,2-Dibromoethane	mg/kg	0.04	-	ND (0.00017)	-	-	-
1,2-Dichlorobenzene	mg/kg	59000	-	ND (0.00016)	-	-	-
1,3-Dichlorobenzene	mg/kg	59000	-	ND (0.00021)	-	-	-
1,4-Dichlorobenzene	mg/kg	13	-	ND (0.00030)	-	-	-
Dichlorodifluoromethane	mg/kg	230000	-	ND (0.00048)	-	-	-
1,1-Dichloroethane	mg/kg	24	-	ND (0.00019)	-	-	-
1,2-Dichloroethane	mg/kg	3	-	ND (0.00018)	-	-	-
1,1-Dichloroethene	mg/kg	150	-	ND (0.00079)	-	-	-
cis-1,2-Dichloroethene	mg/kg	560	-	ND (0.0010)	-	-	-
trans-1,2-Dichloroethene	mg/kg	720	-	ND (0.00079)	-	-	-
1,2-Dichloropropane	mg/kg	5	-	ND (0.00032)	-	-	-
cis-1,3-Dichloropropene	mg/kg	7	-	ND (0.00016)	-	-	-
trans-1,3-Dichloropropene	mg/kg	7	-	ND (0.00024)	-	-	-
Ethylbenzene	mg/kg	110000	-	0.0452	-	-	-
Freon 113	mg/kg	-	-	ND (0.00060)	-	-	-
2-Hexanone	mg/kg	-	-	ND (0.0018)	-	-	-
Isopropylbenzene	mg/kg	-	-	0.0051	-	-	-
Methyl Acetate	mg/kg	NA	-	ND (0.0011)	-	-	-
Methylcyclohexane	mg/kg	-	-	0.00085 J	-	-	-
Methyl Tert Butyl Ether	mg/kg	320	-	ND (0.00020)	-	-	-
4-Methyl-2-pentanone(MIBK)	mg/kg	-	-	ND (0.00061)	-	-	-
Methylene chloride	mg/kg	97	-	ND (0.0013)	-	-	-
Styrene	mg/kg	260	-	ND (0.00024)	-	-	-
1,1,2,2-Tetrachloroethane	mg/kg	3	-	ND (0.00023)	-	-	-
Tetrachloroethene	mg/kg	5	-	ND (0.00040)	-	-	-
Toluene	mg/kg	91000	-	ND (0.00028)	-	-	-
1,2,3-Trichlorobenzene	mg/kg	-	-	ND (0.00023)	-	-	-
1,2,4-Trichlorobenzene	mg/kg	820	-	ND (0.00022)	-	-	-
1,1,1-Trichloroethane	mg/kg	4200	-	ND (0.00020)	-	-	-
1,1,2-Trichloroethane	mg/kg	6	-	ND (0.00020)	-	-	-
Trichloroethene	mg/kg	20	-	ND (0.00020)	-	-	-
Trichlorofluoromethane	mg/kg	340000	-	ND (0.00033)	-	-	-
Vinyl chloride	mg/kg	2	-	ND (0.00026)	-	-	-
Xylene (total)	mg/kg	170000	-	0.0649	-	-	-
GC/MS Volatile TIC							
Total TIC, Volatile	mg/kg	-	-	0.214 J	-	-	-
Total Alkanes	mg/kg	-	-	0.417 J	-	-	-



Table 4-1  
Hess Corporation - Former Port Reading Complex (HC-PR) - 750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Sample Results at AOC 90 - Former Drum Storage Compound

Client Sample ID:		NJ Non-Residential Direct Contact Soil	DSQC-SS-1	DSQC-SS-1	DSQC-SS-1	DSQC-SS-1	DSQC-SS-2
Lab Sample ID:			JB98904-1	JB98904-1R	JB98904-1T	JB98904-1TU	JB98904-2
Date Sampled:			7/9/2015	7/9/2015	7/9/2015	7/9/2015	7/9/2015
Matrix:			Soil	Soil	Soil	Soil	Soil
Depth:			2.5-3.0 ft	2.5-3.0 ft	2.5-3.0 ft	2.5-3.0 ft	2.0-2.5 ft
GC/MS Semi-volatiles (SW846 8270D)							
2-Chlorophenol	mg/kg	2200	-	ND (0.070)	-	-	-
4-Chloro-3-methyl phenol	mg/kg	-	-	ND (0.18)	-	-	-
2,4-Dichlorophenol	mg/kg	2100	-	ND (0.18)	-	-	-
2,4-Dimethylphenol	mg/kg	14000	-	ND (0.18)	-	-	-
2,4-Dinitrophenol	mg/kg	1400	-	ND (0.18)	-	-	-
4,6-Dinitro-o-cresol	mg/kg	68	-	ND (0.18)	-	-	-
2-Methylphenol	mg/kg	3400	-	ND (0.070)	-	-	-
3&4-Methylphenol	mg/kg	-	-	ND (0.070)	-	-	-
2-Nitrophenol	mg/kg	-	-	ND (0.18)	-	-	-
4-Nitrophenol	mg/kg	-	-	ND (0.35)	-	-	-
Pentachlorophenol	mg/kg	10	-	ND (0.18)	-	-	-
Phenol	mg/kg	210000	-	ND (0.070)	-	-	-
2,3,4,6-Tetrachlorophenol	mg/kg	-	-	ND (0.18)	-	-	-
2,4,5-Trichlorophenol	mg/kg	68000	-	ND (0.18)	-	-	-
2,4,6-Trichlorophenol	mg/kg	74	-	ND (0.18)	-	-	-
Acenaphthene	mg/kg	37000	-	ND (0.035)	-	-	-
Acenaphthylene	mg/kg	300000	-	ND (0.035)	-	-	-
Acetophenone	mg/kg	5	-	ND (0.18)	-	-	-
Anthracene	mg/kg	30000	-	ND (0.035)	-	-	-
Atrazine	mg/kg	2400	-	ND (0.070)	-	-	-
Benzo(a)anthracene	mg/kg	2	-	ND (0.035)	-	-	-
Benzo(a)pyrene	mg/kg	0.2	-	0.0202 J	-	-	-
Benzo(b)fluoranthene	mg/kg	2	-	0.0194 J	-	-	-
Benzo(g,h,i)perylene	mg/kg	30000	-	0.0196 J	-	-	-
Benzo(k)fluoranthene	mg/kg	23	-	ND (0.035)	-	-	-
4-Bromophenyl phenyl ether	mg/kg	-	-	ND (0.070)	-	-	-
Butyl benzyl phthalate	mg/kg	14000	-	ND (0.070)	-	-	-
1,1'-Biphenyl	mg/kg	34000	-	ND (0.070)	-	-	-
Benzaldehyde	mg/kg	68000	-	ND (0.18)	-	-	-
2-Chloronaphthalene	mg/kg	-	-	ND (0.070)	-	-	-
4-Chloroaniline	mg/kg	-	-	ND (0.18)	-	-	-
Carbazole	mg/kg	96	-	ND (0.070)	-	-	-
Caprolactam	mg/kg	340000	-	ND (0.070)	-	-	-
Chrysene	mg/kg	230	-	0.059	-	-	-
bis(2-Chloroethoxy)methane	mg/kg	-	-	ND (0.070)	-	-	-
bis(2-Chloroethyl)ether	mg/kg	2	-	ND (0.070)	-	-	-
bis(2-Chloroisopropyl)ether	mg/kg	67	-	ND (0.070)	-	-	-
4-Chlorophenyl phenyl ether	mg/kg	-	-	ND (0.070)	-	-	-
2,4-Dinitrotoluene	mg/kg	3	-	ND (0.035)	-	-	-
2,6-Dinitrotoluene	mg/kg	3	-	ND (0.035)	-	-	-
3,3'-Dichlorobenzidine	mg/kg	4	-	ND (0.070)	-	-	-
1,4-Dioxane	mg/kg	-	-	ND (0.035)	-	-	-
Dibenzo(a,h)anthracene	mg/kg	0.2	-	ND (0.035)	-	-	-
Dibenzofuran	mg/kg	-	-	ND (0.070)	-	-	-
Di-n-butyl phthalate	mg/kg	68000	-	ND (0.070)	-	-	-
Di-n-octyl phthalate	mg/kg	27000	-	ND (0.070)	-	-	-
Diethyl phthalate	mg/kg	550000	-	ND (0.070)	-	-	-
Dimethyl phthalate	mg/kg	-	-	ND (0.070)	-	-	-
bis(2-Ethylhexyl)phthalate	mg/kg	140	-	ND (0.070)	-	-	-
Fluoranthene	mg/kg	24000	-	0.0165 J	-	-	-
Fluorene	mg/kg	24000	-	ND (0.035)	-	-	-
Hexachlorobenzene	mg/kg	1	-	ND (0.070)	-	-	-
Hexachlorobutadiene	mg/kg	25	-	ND (0.035)	-	-	-
Hexachlorocyclopentadiene	mg/kg	110	-	ND (0.35)	-	-	-
Hexachloroethane	mg/kg	140	-	ND (0.18)	-	-	-
Indeno(1,2,3-cd)pyrene	mg/kg	2	-	ND (0.035)	-	-	-
Isophorone	mg/kg	2000	-	ND (0.070)	-	-	-
2-Methylnaphthalene	mg/kg	2400	-	ND (0.070)	-	-	-
2-Nitroaniline	mg/kg	23000	-	ND (0.18)	-	-	-
3-Nitroaniline	mg/kg	-	-	ND (0.18)	-	-	-
4-Nitroaniline	mg/kg	-	-	ND (0.18)	-	-	-
Naphthalene	mg/kg	17	-	ND (0.035)	-	-	-
Nitrobenzene	mg/kg	340	-	ND (0.070)	-	-	-
N-Nitroso-di-n-propylamine	mg/kg	0.3	-	ND (0.070)	-	-	-
N-Nitrosodiphenylamine	mg/kg	390	-	ND (0.18)	-	-	-
Phenanthrene	mg/kg	300000	-	0.0746	-	-	-
Pyrene	mg/kg	18000	-	0.0424	-	-	-
1,2,4,5-Tetrachlorobenzene	mg/kg	-	-	ND (0.18)	-	-	-
Hexachlorobutadiene	mg/kg	25	-	ND (0.012)	-	-	-
Hexachlorocyclopentadiene	mg/kg	110	-	ND (0.013)	-	-	-
Hexachloroethane	mg/kg	140	-	ND (0.018)	-	-	-
Isophorone	mg/kg	2000	-	ND (0.0060)	-	-	-
2-Methylnaphthalene	mg/kg	2400	-	ND (0.0081)	-	-	-
2-Nitroaniline	mg/kg	23000	-	ND (0.016)	-	-	-
3-Nitroaniline	mg/kg	-	-	ND (0.012)	-	-	-
4-Nitroaniline	mg/kg	-	-	ND (0.0097)	-	-	-
Nitrobenzene	mg/kg	340	-	ND (0.014)	-	-	-
N-Nitroso-di-n-propylamine	mg/kg	0.3	-	ND (0.0098)	-	-	-
N-Nitrosodiphenylamine	mg/kg	390	-	ND (0.0084)	-	-	-
1,2,4,5-Tetrachlorobenzene	mg/kg	-	-	ND (0.0059)	-	-	-

Table 4-1  
Hess Corporation - Former Port Reading Complex (HC-PR) - 750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Sample Results at AOC 90 - Former Drum Storage Compound

Client Sample ID:		NJ Non-Residential Direct Contact Soil	DSQC-SS-1	DSQC-SS-1	DSQC-SS-1	DSQC-SS-1	DSQC-SS-2
Lab Sample ID:			JB98904-1	JB98904-1R	JB98904-1T	JB98904-1TU	JB98904-2
Date Sampled:			7/9/2015	7/9/2015	7/9/2015	7/9/2015	7/9/2015
Matrix:			Soil	Soil	Soil	Soil	Soil
Depth:			2.5-3.0 ft	2.5-3.0 ft	2.5-3.0 ft	2.5-3.0 ft	2.0-2.5 ft
GC/MS Semi-volatile TIC							
Total TIC, Semi-Volatile	mg/kg	-	-	4.21 J	-	-	-
Total Alkanes	mg/kg	-	-	6.38 J	-	-	-
GC Semi-volatiles (NJDEP EPH)							
C10-C12 Aromatics	mg/kg	-	ND (0.14)	-	-	-	ND (0.13)
C12-C16 Aromatics	mg/kg	-	ND (0.22)	-	-	-	ND (0.21)
C16-C21 Aromatics	mg/kg	-	26.8	-	-	-	24
C21-C36 Aromatics	mg/kg	-	125	-	-	-	66.5
Total Aromatics	mg/kg	-	152	-	-	-	90.5
C9-C12 Aliphatics	mg/kg	-	ND (0.13)	-	-	-	ND (0.12)
C12-C16 Aliphatics	mg/kg	-	30.8	-	-	-	22.5
C16-C21 Aliphatics	mg/kg	-	55.4	-	-	-	35.1
C21-C40 Aliphatics	mg/kg	-	203	-	-	-	59.1
Total Aliphatics	mg/kg	-	290	-	-	-	117
Total EPH	mg/kg	-	442	-	-	-	207
GC Semi-volatiles (SW846 8082A)							
Aroclor 1016	mg/kg	1	-	ND (0.012)	-	-	-
Aroclor 1221	mg/kg	1	-	ND (0.021)	-	-	-
Aroclor 1232	mg/kg	1	-	ND (0.012)	-	-	-
Aroclor 1242	mg/kg	1	-	ND (0.017)	-	-	-
Aroclor 1248	mg/kg	1	-	ND (0.011)	-	-	-
Aroclor 1254	mg/kg	1	-	ND (0.016)	-	-	-
Aroclor 1260	mg/kg	1	-	ND (0.015)	-	-	-
Aroclor 1268	mg/kg	1	-	ND (0.011)	-	-	-
Aroclor 1262	mg/kg	1	-	ND (0.010)	-	-	-

Table 4-1  
Hess Corporation - Former Port Reading Complex (HC-PR) - 750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Sample Results at AOC 90 - Former Drum Storage Compound

Client Sample ID:		NJ Non-Residential Direct Contact Soil	DSQC-SS-1	DSQC-SS-1	DSQC-SS-1	DSQC-SS-1	DSQC-SS-2
Lab Sample ID:			JB98904-1	JB98904-1R	JB98904-1T	JB98904-1TU	JB98904-2
Date Sampled:			7/9/2015	7/9/2015	7/9/2015	7/9/2015	7/9/2015
Matrix:			Soil	Soil	Soil	Soil	Soil
Depth:			2.5-3.0 ft	2.5-3.0 ft	2.5-3.0 ft	2.5-3.0 ft	2.0-2.5 ft
<b>Metals Analysis</b>							
Aluminum	mg/kg	NA	-	12700	-	-	-
Antimony	mg/kg	450	-	<2.4	-	-	-
Arsenic	mg/kg	19	-	8	-	-	-
Barium	mg/kg	59000	-	89.7	-	-	-
Beryllium	mg/kg	140	-	0.79	-	-	-
Cadmium	mg/kg	78	-	<0.60	-	-	-
Calcium	mg/kg	-	-	1250	-	-	-
Chromium	mg/kg	-	-	23.7	-	-	-
Chromium, Hexavalent	mg/kg	-	-	-	<0.47	<0.47	-
Cobalt	mg/kg	590	-	9.7	-	-	-
Copper	mg/kg	45000	-	25.3	-	-	-
Iron	mg/kg	-	-	23700	-	-	-
Lead	mg/kg	800	-	26.2	-	-	-
Magnesium	mg/kg	-	-	4050	-	-	-
Manganese	mg/kg	5900	-	343	-	-	-
Mercury	mg/kg	65	-	<0.036	-	-	-
Nickel	mg/kg	23000	-	21.9	-	-	-
Potassium	mg/kg	-	-	1860	-	-	-
Selenium	mg/kg	5700	-	<2.4	-	-	-
Silver	mg/kg	5700	-	<0.60	-	-	-
Sodium	mg/kg	-	-	<1200	-	-	-
Thallium	mg/kg	79	-	<1.2	-	-	-
Vanadium	mg/kg	1100	-	31.9	-	-	-
Zinc	mg/kg	110000	-	58	-	-	-
<b>General Chemistry</b>							
Iron, Ferrous	%	-	-	-	-	0.63 <sup>c</sup>	-
Redox Potential Vs H2	mv	-	-	-	526	-	-
Solids, Percent	%	-	85.5	-	-	-	88.3
Sulfide Screen		-	-	-	-	NEGATIVE <sup>a</sup>	-
Total Organic Carbon	mg/kg	-	-	-	-	7160	-
pH	su	-	-	-	6.06	-	-

All results in mg/kg unless otherwise noted.	
mg/kg	milligrams per kilogram
J	Estimated Value
NS	Not Sampled
ND	Not Detected
NA	Not Analyzed
( )	Method Detection Limit
B	Compound Found in Blank
**	Health based standard defaults to soil saturation limit
<sup>b</sup>	Result is from 2nd run
<sup>a</sup>	Result is from 2nd run
	Exceeds NJDEP Non-Residential Soil Remediation Standard

Table 4-1  
Hess Corporation - Former Port Reading Complex (HC-PR) - 750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Analytical Results at AOC 96 - Boiler Area

Client Sample ID:		NJ Non-Residential Direct Contact Soil	BA-SS-1	BA-SS-1	BA-SS-2	BA-SS-2	BA-SS-3	BA-SS-3	BA-SS-4	BA-SS-4
Lab Sample ID:			JB99429-1	JB99429-1T	JB99248-8	JB99248-8R	JB99248-9	JB99248-9U	JB99248-10	JB99248-10U
Date Sampled:			7/16/2015	7/16/2015	7/15/2015	7/15/2015	7/15/2015	7/15/2015	7/15/2015	7/15/2015
Matrix:			Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Depth:			1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft
GC/MS Volatiles (SW846 8260C)										
Acetone	mg/kg	NA	0.0044 J	-	0.0062 J	-	ND (0.0022)	-	0.0651	-
Benzene	mg/kg	5	ND (0.00013)	-	ND (0.00014)	-	ND (0.00013)	-	ND (0.00014)	-
Bromochloromethane	mg/kg	-	ND (0.00030)	-	ND (0.00033)	-	ND (0.00031)	-	ND (0.00032)	-
Bromodichloromethane	mg/kg	3	ND (0.00015)	-	ND (0.00016)	-	ND (0.00016)	-	ND (0.00016)	-
Bromoform	mg/kg	280	ND (0.00023)	-	ND (0.00025)	-	ND (0.00024)	-	ND (0.00024)	-
Bromomethane	mg/kg	59	ND (0.00036)	-	ND (0.00038)	-	ND (0.00036)	-	ND (0.00038)	-
2-Butanone (MEK)	mg/kg	44000	ND (0.0019)	-	ND (0.0020)	-	ND (0.0019)	-	ND (0.0020)	-
Carbon disulfide	mg/kg	110000	ND (0.00022)	-	ND (0.00024)	-	ND (0.00023)	-	0.00072 J	-
Carbon tetrachloride	mg/kg	2	ND (0.00023)	-	ND (0.00024)	-	ND (0.00023)	-	ND (0.00024)	-
Chlorobenzene	mg/kg	7400	ND (0.00015)	-	ND (0.00016)	-	ND (0.00015)	-	ND (0.00016)	-
Chloroethane	mg/kg	1100	ND (0.00047)	-	ND (0.00051)	-	ND (0.00048)	-	ND (0.00050)	-
2-Chloroethyl vinyl ether	mg/kg	-	-	-	-	-	-	-	-	-
Chloroform	mg/kg	2	ND (0.00015)	-	ND (0.00016)	-	ND (0.00015)	-	ND (0.00015)	-
Chloromethane	mg/kg	12	ND (0.00026)	-	ND (0.00028)	-	ND (0.00026)	-	ND (0.00027)	-
Cyclohexane	mg/kg	-	ND (0.00031)	-	ND (0.00033)	-	ND (0.00032)	-	ND (0.00033)	-
1,2-Dibromo-3-chloropropane	mg/kg	0.2	ND (0.00053)	-	ND (0.00057)	-	ND (0.00054)	-	ND (0.00056)	-
Dibromochloromethane	mg/kg	8	ND (0.00020)	-	ND (0.00022)	-	ND (0.00020)	-	ND (0.00021)	-
1,2-Dibromoethane	mg/kg	0.04	ND (0.00013)	-	ND (0.00014)	-	ND (0.00013)	-	ND (0.00014)	-
1,2-Dichlorobenzene	mg/kg	59000	ND (0.00012)	-	ND (0.00013)	-	ND (0.00012)	-	ND (0.00013)	-
1,3-Dichlorobenzene	mg/kg	59000	ND (0.00015)	-	ND (0.00017)	-	ND (0.00016)	-	ND (0.00016)	-
1,4-Dichlorobenzene	mg/kg	13	ND (0.00022)	-	ND (0.00024)	-	ND (0.00022)	-	ND (0.00023)	-
Dichlorodifluoromethane	mg/kg	230000	ND (0.00036)	-	ND (0.00038)	-	ND (0.00036)	-	ND (0.00037)	-
1,1-Dichloroethane	mg/kg	24	ND (0.00014)	-	ND (0.00015)	-	ND (0.00014)	-	ND (0.00015)	-
1,2-Dichloroethane	mg/kg	3	ND (0.00013)	-	ND (0.00014)	-	ND (0.00013)	-	ND (0.00014)	-
1,1-Dichloroethene	mg/kg	150	ND (0.00058)	-	ND (0.00063)	-	ND (0.00059)	-	ND (0.00061)	-
cis-1,2-Dichloroethene	mg/kg	560	ND (0.00077)	-	ND (0.00082)	-	ND (0.00078)	-	ND (0.00080)	-
trans-1,2-Dichloroethene	mg/kg	720	ND (0.00058)	-	ND (0.00063)	-	ND (0.00059)	-	ND (0.00061)	-
1,2-Dichloropropane	mg/kg	5	ND (0.00023)	-	ND (0.00025)	-	ND (0.00024)	-	ND (0.00025)	-
cis-1,3-Dichloropropene	mg/kg	7	ND (0.00012)	-	ND (0.00012)	-	ND (0.00012)	-	ND (0.00012)	-
trans-1,3-Dichloropropene	mg/kg	7	ND (0.00017)	-	ND (0.00019)	-	ND (0.00018)	-	ND (0.00018)	-
Ethylbenzene	mg/kg	110000	ND (0.00016)	-	ND (0.00017)	-	ND (0.00016)	-	ND (0.00017)	-
Freon 113	mg/kg	-	ND (0.00044)	-	ND (0.00047)	-	ND (0.00045)	-	ND (0.00046)	-
2-Hexanone	mg/kg	-	ND (0.0013)	-	ND (0.0014)	-	ND (0.0013)	-	ND (0.0014)	-
Isopropylbenzene	mg/kg	-	ND (0.00010)	-	ND (0.00011)	-	ND (0.00011)	-	ND (0.00011)	-
Methyl Acetate	mg/kg	NA	ND (0.00085)	-	ND (0.00091)	-	ND (0.00086)	-	ND (0.00089)	-
Methylcyclohexane	mg/kg	-	ND (0.00022)	-	ND (0.00024)	-	ND (0.00023)	-	ND (0.00023)	-
Methyl Tert Butyl Ether	mg/kg	320	ND (0.00015)	-	ND (0.00016)	-	ND (0.00015)	-	ND (0.00016)	-
4-Methyl-2-pentanone(MIBK)	mg/kg	-	ND (0.00045)	-	ND (0.00048)	-	ND (0.00046)	-	ND (0.00047)	-
Methylene chloride	mg/kg	97	ND (0.00097)	-	ND (0.0010)	-	ND (0.00098)	-	ND (0.0010)	-
Styrene	mg/kg	260	ND (0.00018)	-	ND (0.00019)	-	ND (0.00018)	-	ND (0.00018)	-
Tert Butyl Alcohol	mg/kg	11000	ND (0.0026)	-	ND (0.0028)	-	ND (0.0027)	-	ND (0.0028)	-
1,1,2,2-Tetrachloroethane	mg/kg	3	ND (0.00017)	-	ND (0.00018)	-	ND (0.00017)	-	ND (0.00018)	-
Tetrachloroethene	mg/kg	5	ND (0.00030)	-	0.0025	-	ND (0.00030)	-	ND (0.00031)	-
Toluene	mg/kg	91000	ND (0.00020)	-	0.0076	-	0.0029	-	0.0075	-
1,2,3-Trichlorobenzene	mg/kg	-	ND (0.00017)	-	ND (0.00019)	-	ND (0.00018)	-	ND (0.00018)	-
1,2,4-Trichlorobenzene	mg/kg	820	ND (0.00017)	-	ND (0.00018)	-	ND (0.00017)	-	ND (0.00017)	-
1,1,1-Trichloroethane	mg/kg	4200	ND (0.00015)	-	ND (0.00016)	-	ND (0.00015)	-	ND (0.00015)	-
1,1,2-Trichloroethane	mg/kg	6	ND (0.00014)	-	ND (0.00016)	-	ND (0.00015)	-	ND (0.00015)	-
Trichloroethene	mg/kg	20	ND (0.00014)	-	ND (0.00016)	-	ND (0.00015)	-	ND (0.00015)	-
Trichlorofluoromethane	mg/kg	340000	ND (0.00024)	-	ND (0.00026)	-	ND (0.00025)	-	ND (0.00026)	-
Vinyl chloride	mg/kg	2	ND (0.00019)	-	ND (0.00021)	-	ND (0.00020)	-	ND (0.00020)	-
m,p-Xylene	mg/kg	170000	ND (0.00035)	-	ND (0.00037)	-	ND (0.00035)	-	ND (0.00036)	-
o-Xylene	mg/kg	170000	ND (0.00027)	-	ND (0.00029)	-	ND (0.00027)	-	ND (0.00028)	-
Xylene (total)	mg/kg	170000	ND (0.00027)	-	ND (0.00029)	-	ND (0.00027)	-	ND (0.00028)	-
GC/MS Volatile TIC										
Total TIC, Volatile	mg/kg	-	0	-	0	-	0	-	0	-
Total Alkanes	mg/kg	-	0	-	0	-	0	-	0	-

Table 4-1  
Hess Corporation - Former Port Reading Complex (HC-PR) - 750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Analytical Results at AOC 96 - Boiler Area

Client Sample ID:		NJ Non-Residential Direct Contact Soil	BA-SS-1	BA-SS-1	BA-SS-2	BA-SS-2	BA-SS-3	BA-SS-3	BA-SS-4	BA-SS-4
Lab Sample ID:			JB99429-1	JB99429-1T	JB99248-8	JB99248-8R	JB99248-9	JB99248-9U	JB99248-10	JB99248-10U
Date Sampled:			7/16/2015	7/16/2015	7/15/2015	7/15/2015	7/15/2015	7/15/2015	7/15/2015	7/15/2015
Matrix:			Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Depth:			1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft
GC/MS Semi-volatiles (SW846 8270D)										
2-Chlorophenol	mg/kg	2200	ND (0.072)	-	ND (0.073)	-	ND (0.074)	-	ND (0.075)	-
4-Chloro-3-methyl phenol	mg/kg	-	ND (0.18)	-	ND (0.18)	-	ND (0.18)	-	ND (0.19)	-
2,4-Dichlorophenol	mg/kg	2100	ND (0.18)	-	ND (0.18)	-	ND (0.18)	-	ND (0.19)	-
2,4-Dimethylphenol	mg/kg	14000	ND (0.18)	-	ND (0.18)	-	ND (0.18)	-	ND (0.19)	-
2,4-Dinitrophenol	mg/kg	1400	ND (0.18)	-	ND (0.18)	-	ND (0.18)	-	ND (0.19)	-
4,6-Dinitro-o-cresol	mg/kg	68	ND (0.18)	-	ND (0.18)	-	ND (0.18)	-	ND (0.19)	-
2-Methylphenol	mg/kg	3400	ND (0.072)	-	ND (0.073)	-	ND (0.074)	-	ND (0.075)	-
3&4-Methylphenol	mg/kg	-	ND (0.072)	-	ND (0.073)	-	ND (0.074)	-	ND (0.075)	-
2-Nitrophenol	mg/kg	-	ND (0.18)	-	ND (0.18)	-	ND (0.18)	-	ND (0.19)	-
4-Nitrophenol	mg/kg	-	ND (0.36)	-	ND (0.37)	-	ND (0.37)	-	ND (0.38)	-
Pentachlorophenol	mg/kg	10	ND (0.18)	-	ND (0.18)	-	ND (0.18)	-	ND (0.19)	-
Phenol	mg/kg	210000	ND (0.072)	-	ND (0.073)	-	ND (0.074)	-	ND (0.075)	-
2,3,4,6-Tetrachlorophenol	mg/kg	-	ND (0.18)	-	ND (0.18)	-	ND (0.18)	-	ND (0.19)	-
2,4,5-Trichlorophenol	mg/kg	68000	ND (0.18)	-	ND (0.18)	-	ND (0.18)	-	ND (0.19)	-
2,4,6-Trichlorophenol	mg/kg	74	ND (0.18)	-	ND (0.18)	-	ND (0.18)	-	ND (0.19)	-
Acenaphthene	mg/kg	37000	ND (0.036)	-	ND (0.037)	-	ND (0.037)	-	ND (0.038)	-
Acenaphthylene	mg/kg	300000	ND (0.036)	-	ND (0.037)	-	ND (0.037)	-	ND (0.038)	-
Acetophenone	mg/kg	5	ND (0.18)	-	ND (0.18)	-	ND (0.18)	-	ND (0.19)	-
Anthracene	mg/kg	30000	ND (0.036)	-	ND (0.037)	-	ND (0.037)	-	ND (0.038)	-
Atrazine	mg/kg	2400	ND (0.072)	-	ND (0.073)	-	ND (0.074)	-	ND (0.075)	-
Benzo(a)anthracene	mg/kg	2	ND (0.036)	-	ND (0.037)	-	ND (0.037)	-	ND (0.038)	-
Benzo(a)pyrene	mg/kg	0.2	ND (0.036)	-	ND (0.037)	-	ND (0.037)	-	ND (0.038)	-
Benzo(b)fluoranthene	mg/kg	2	ND (0.036)	-	ND (0.037)	-	ND (0.037)	-	ND (0.038)	-
Benzo(g,h,i)perylene	mg/kg	30000	ND (0.036)	-	ND (0.037)	-	ND (0.037)	-	ND (0.038)	-
Benzo(k)fluoranthene	mg/kg	23	ND (0.036)	-	ND (0.037)	-	ND (0.037)	-	ND (0.038)	-
4-Bromophenyl phenyl ether	mg/kg	-	ND (0.072)	-	ND (0.073)	-	ND (0.074)	-	ND (0.075)	-
Butyl benzyl phthalate	mg/kg	14000	ND (0.072)	-	ND (0.073)	-	ND (0.074)	-	ND (0.075)	-
1,1'-Biphenyl	mg/kg	34000	ND (0.072)	-	ND (0.073)	-	ND (0.074)	-	ND (0.075)	-
Benzaldehyde	mg/kg	68000	ND (0.18)	-	ND (0.18)	-	ND (0.18)	-	ND (0.19)	-
2-Chloronaphthalene	mg/kg	-	ND (0.072)	-	ND (0.073)	-	ND (0.074)	-	ND (0.075)	-
4-Chloroaniline	mg/kg	-	ND (0.18)	-	ND (0.18)	-	ND (0.18)	-	ND (0.19)	-
Carbazole	mg/kg	96	ND (0.072)	-	ND (0.073)	-	ND (0.074)	-	ND (0.075)	-
Caprolactam	mg/kg	340000	ND (0.072)	-	ND (0.073)	-	ND (0.074)	-	ND (0.075)	-
Chrysene	mg/kg	230	ND (0.036)	-	ND (0.037)	-	ND (0.037)	-	ND (0.038)	-
bis(2-Chloroethoxy)methane	mg/kg	-	ND (0.072)	-	ND (0.073)	-	ND (0.074)	-	ND (0.075)	-
bis(2-Chloroethyl)ether	mg/kg	2	ND (0.072)	-	ND (0.073)	-	ND (0.074)	-	ND (0.075)	-
bis(2-Chloroisopropyl)ether	mg/kg	67	ND (0.072)	-	ND (0.073)	-	ND (0.074)	-	ND (0.075)	-
4-Chlorophenyl phenyl ether	mg/kg	-	ND (0.072)	-	ND (0.073)	-	ND (0.074)	-	ND (0.075)	-
2,4-Dinitrotoluene	mg/kg	3	ND (0.036)	-	ND (0.037)	-	ND (0.037)	-	ND (0.038)	-
2,6-Dinitrotoluene	mg/kg	3	ND (0.036)	-	ND (0.037)	-	ND (0.037)	-	ND (0.038)	-
3,3'-Dichlorobenzidine	mg/kg	4	ND (0.072)	-	ND (0.073)	-	ND (0.074)	-	ND (0.075)	-
1,4-Dioxane	mg/kg	-	ND (0.036)	-	ND (0.037)	-	ND (0.037)	-	ND (0.038)	-
Dibenzo(a,h)anthracene	mg/kg	0.2	ND (0.036)	-	ND (0.037)	-	ND (0.037)	-	ND (0.038)	-
Dibenzofuran	mg/kg	-	ND (0.072)	-	ND (0.073)	-	ND (0.074)	-	ND (0.075)	-
Di-n-butyl phthalate	mg/kg	68000	ND (0.072)	-	ND (0.073)	-	ND (0.074)	-	ND (0.075)	-
Di-n-octyl phthalate	mg/kg	27000	ND (0.072)	-	ND (0.073)	-	ND (0.074)	-	ND (0.075)	-
Diethyl phthalate	mg/kg	550000	ND (0.072)	-	ND (0.073)	-	ND (0.074)	-	ND (0.075)	-
Dimethyl phthalate	mg/kg	-	ND (0.072)	-	ND (0.073)	-	ND (0.074)	-	ND (0.075)	-
bis(2-Ethylhexyl)phthalate	mg/kg	140	ND (0.072)	-	0.339	-	ND (0.074)	-	ND (0.075)	-
Fluoranthene	mg/kg	24000	ND (0.036)	-	ND (0.037)	-	ND (0.037)	-	ND (0.038)	-
Fluorene	mg/kg	24000	ND (0.036)	-	ND (0.037)	-	ND (0.037)	-	ND (0.038)	-
Hexachlorobenzene	mg/kg	1	ND (0.072)	-	ND (0.073)	-	ND (0.074)	-	ND (0.075)	-
Hexachlorobutadiene	mg/kg	25	ND (0.036)	-	ND (0.037)	-	ND (0.037)	-	ND (0.038)	-
Hexachlorocyclopentadiene	mg/kg	110	ND (0.36)	-	ND (0.37)	-	ND (0.37)	-	ND (0.38)	-
Hexachloroethane	mg/kg	140	ND (0.18)	-	ND (0.18)	-	ND (0.18)	-	ND (0.19)	-
Indeno(1,2,3-cd)pyrene	mg/kg	2	ND (0.036)	-	ND (0.037)	-	ND (0.037)	-	ND (0.038)	-
Isophorone	mg/kg	2000	ND (0.072)	-	ND (0.073)	-	ND (0.074)	-	ND (0.075)	-
2-Methylnaphthalene	mg/kg	2400	ND (0.072)	-	ND (0.073)	-	0.0213 J	-	ND (0.075)	-
2-Nitroaniline	mg/kg	23000	ND (0.18)	-	ND (0.18)	-	ND (0.18)	-	ND (0.19)	-
3-Nitroaniline	mg/kg	-	ND (0.18)	-	ND (0.18)	-	ND (0.18)	-	ND (0.19)	-
4-Nitroaniline	mg/kg	-	ND (0.18)	-	ND (0.18)	-	ND (0.18)	-	ND (0.19)	-
Naphthalene	mg/kg	17	ND (0.036)	-	0.0166 J	-	0.0166 J	-	ND (0.038)	-
Nitrobenzene	mg/kg	340	ND (0.072)	-	ND (0.073)	-	ND (0.074)	-	ND (0.075)	-
N-Nitroso-di-n-propylamine	mg/kg	0.3	ND (0.072)	-	ND (0.073)	-	ND (0.074)	-	ND (0.075)	-
N-Nitrosodiphenylamine	mg/kg	390	ND (0.18)	-	ND (0.18)	-	ND (0.18)	-	ND (0.19)	-
Phenanthrene	mg/kg	300000	ND (0.036)	-	ND (0.037)	-	0.0234 J	-	ND (0.038)	-
Pyrene	mg/kg	18000	ND (0.036)	-	ND (0.037)	-	ND (0.037)	-	ND (0.038)	-
1,2,4,5-Tetrachlorobenzene	mg/kg	-	ND (0.18)	-	ND (0.18)	-	ND (0.18)	-	ND (0.19)	-
GC/MS Semi-volatile TIC										
Total TIC, Semi-Volatile	mg/kg	-	0	-	0.41 J	-	0.61 J	-	2.19 J	-
Total Alkanes	mg/kg	-	-	-	-	-	-	-	-	-
Total Alkanes	mg/kg	-	0	-	0	-	0	-	0	-



Table 4-1  
Hess Corporation - Former Port Reading Complex (HC-PR) - 750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Analytical Results at AOC 96 - Boiler Area

Client Sample ID:		NJ Non-Residential Direct Contact Soil	BA-SS-1	BA-SS-1	BA-SS-2	BA-SS-2	BA-SS-3	BA-SS-3	BA-SS-4	BA-SS-4
Lab Sample ID:			JB99429-1	JB99429-1T	JB99248-8	JB99248-8R	JB99248-9	JB99248-9U	JB99248-10	JB99248-10U
Date Sampled:			7/16/2015	7/16/2015	7/15/2015	7/15/2015	7/15/2015	7/15/2015	7/15/2015	7/15/2015
Matrix:			Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Depth:			1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft
GC Semi-volatiles (NJDEP EPH)										
EPH (C9-C28)	mg/kg	-	-	-	-	ND (4.7)	-	-	-	-
EPH (>C28-C40)	mg/kg	-	-	-	-	ND (4.7)	-	-	-	-
Total EPH (C9-C40)	mg/kg	-	-	-	-	ND (4.7)	-	-	-	-
Metals Analysis										
Aluminum	mg/kg	NA	6900	-	3950	-	3640	-	15700	-
Antimony	mg/kg	450	<2.2	-	<2.4	-	<2.2	-	<2.2	-
Arsenic	mg/kg	19	6.1	-	6.2	-	10.3	-	8	-
Barium	mg/kg	59000	22.5	-	25.1	-	23.4	-	47.6	-
Beryllium	mg/kg	140	0.48	-	0.31	-	0.39	-	0.59	-
Cadmium	mg/kg	78	<0.55	-	<0.60	-	<0.56	-	<0.56	-
Calcium	mg/kg	-	599	-	1900	-	<560	-	2030	-
Chromium	mg/kg	-	117	-	14.2	-	21.5	-	27.7	-
Chromium, Hexavalent	mg/kg	-	-	4.9	-	-	-	<0.45	-	<0.46
Cobalt	mg/kg	590	9.2	-	<6.0	-	<5.6	-	9.5	-
Copper	mg/kg	45000	7	-	17	-	18.6	-	30.3	-
Iron	mg/kg	-	23200	-	15700	-	22600	-	35500	-
Lead	mg/kg	800	8.2	-	14.6	-	15.8	-	13.6	-
Magnesium	mg/kg	-	3720	-	1540	-	1340	-	5410	-
Manganese	mg/kg	5900	146	-	83.9	-	121	-	306	-
Mercury	mg/kg	65	<0.036	-	0.056	-	0.036	-	<0.034	-
Nickel	mg/kg	23000	19.1	-	9.6	-	9.8	-	22.5	-
Potassium	mg/kg	-	1490	-	<1200	-	<1100	-	2160	-
Selenium	mg/kg	5700	<2.2	-	<2.4	-	<2.2	-	<2.2	-
Silver	mg/kg	5700	<0.55	-	<0.60	-	<0.56	-	<0.56	-
Sodium	mg/kg	-	<1100	-	<1200	-	<1100	-	<1100	-
Sulfur	mg/kg	-	-	-	-	-	-	-	-	-
Thallium	mg/kg	79	<1.1	-	<1.2	-	<1.1	-	<1.1	-
Vanadium	mg/kg	1100	18.9	-	19.8	-	26.6	-	36.8	-
Zinc	mg/kg	110000	53.5	-	36.5	-	42.2	-	55.6	-
General Chemistry										
Nitrogen, Ammonia	mg/kg	-	<2.4	-	<2.6	-	<2.5	-	7.2	-
Redox Potential Vs H2	mv	-	-	566	-	-	-	537	-	544
Solids, Percent	%	-	89.2	-	84.5	-	89.5	-	86.5	-
Sulfide, Neutral Extraction	mg/kg	-	<4.4	-	<4.6	-	<4.4	-	<4.5	-
pH	su	-	8.4	8.36	10.3	-	8.86	8.51	6.86	6.71

All results in mg/kg unless otherwise noted.

mg/kg	milligrams per kilogram
J	Estimated Value
NS	Not Sampled
ND	Not Detected
NA	Not Analyzed
( )	Method Detection Limit
B	Compound Found in Blank
**	Health based standard defaults to soil saturation limit
b	Result is from 2nd run
a	Result is from 2nd run
	Exceeds NJDEP Non-Residential Soil Remediation Standard

Table 4-1  
Former Hess Terminal - 750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Sample Results at AOC 99 - Chemical Storage Adjacent to Cooling Water Tower

Client Sample ID:		NJ Non-Residential Direct Contact Soil	API-SS-11/12	API-SS-11/12	API-SS-11/12A
Lab Sample ID:			JC1987-4	JC1987-4R	JC2306-5
Date Sampled:			8/20/2015	8/20/2015	8/24/2015
Matrix:			Soil	Soil	Soil
Depth:			1.5-2.0 ft	1.5-2.0 ft	26.0-26.5 ft
GC/MS Volatiles (SW846 8260C)					
Acetone	mg/kg	NA	ND (0.0094)	-	ND (0.012)
Benzene	mg/kg	5	ND (0.00047)	-	ND (0.00060)
Bromochloromethane	mg/kg	-	ND (0.0047)	-	ND (0.0060)
Bromodichloromethane	mg/kg	3	ND (0.0019)	-	ND (0.0024)
Bromoform	mg/kg	280	ND (0.0047)	-	ND (0.0060)
Bromomethane	mg/kg	59	ND (0.0047)	-	ND (0.0060)
2-Butanone (MEK)	mg/kg	44000	ND (0.0094)	-	ND (0.012)
Carbon disulfide	mg/kg	110000	ND (0.0019)	-	ND (0.0024)
Carbon tetrachloride	mg/kg	2	ND (0.0019)	-	ND (0.0024)
Chlorobenzene	mg/kg	7400	ND (0.0019)	-	ND (0.0024)
Chloroethane	mg/kg	1100	ND (0.0047)	-	ND (0.0060)
Chloroform	mg/kg	2	ND (0.0019)	-	ND (0.0024)
Chloromethane	mg/kg	12	ND (0.0047)	-	ND (0.0060)
Cyclohexane	mg/kg	-	ND (0.0019)	-	ND (0.0024)
1,2-Dibromo-3-chloropropane	mg/kg	0.2	ND (0.0019)	-	ND (0.0024)
Dibromochloromethane	mg/kg	8	ND (0.0019)	-	ND (0.0024)
1,2-Dibromoethane	mg/kg	0.04	ND (0.00094)	-	ND (0.0012)
1,2-Dichlorobenzene	mg/kg	59000	ND (0.00094)	-	ND (0.0012)
1,3-Dichlorobenzene	mg/kg	59000	ND (0.00094)	-	ND (0.0012)
1,4-Dichlorobenzene	mg/kg	13	ND (0.00094)	-	ND (0.0012)
Dichlorodifluoromethane	mg/kg	230000	ND (0.0047)	-	ND (0.0060)
1,1-Dichloroethane	mg/kg	24	ND (0.00094)	-	ND (0.0012)
1,2-Dichloroethane	mg/kg	3	ND (0.00094)	-	ND (0.0012)
1,1-Dichloroethene	mg/kg	150	ND (0.00094)	-	ND (0.0012)
cis-1,2-Dichloroethene	mg/kg	560	0.001	-	ND (0.0012)
trans-1,2-Dichloroethene	mg/kg	720	ND (0.00094)	-	ND (0.0012)
1,2-Dichloropropane	mg/kg	5	ND (0.0019)	-	ND (0.0024)
cis-1,3-Dichloropropene	mg/kg	7	ND (0.0019)	-	ND (0.0024)
trans-1,3-Dichloropropene	mg/kg	7	ND (0.0019)	-	ND (0.0024)
Ethylbenzene	mg/kg	110000	0.00018 J	-	ND (0.0012)
Freon 113	mg/kg	-	ND (0.0047)	-	ND (0.0060)
2-Hexanone	mg/kg	-	ND (0.0047)	-	ND (0.0060)
Isopropylbenzene	mg/kg	-	ND (0.0019)	-	ND (0.0024)
Methyl Acetate	mg/kg	NA	ND (0.0047)	-	ND (0.0060)
Methylcyclohexane	mg/kg	-	ND (0.0019)	-	ND (0.0024)
Methyl Tert Butyl Ether	mg/kg	320	ND (0.00094)	-	0.00038 J
4-Methyl-2-pentanone(MIBK)	mg/kg	-	ND (0.0047)	-	ND (0.0060)
Methylene chloride	mg/kg	97	ND (0.0047)	-	ND (0.0060)
Styrene	mg/kg	260	ND (0.0019)	-	ND (0.0024)
Tert Butyl Alcohol	mg/kg	11000	ND (0.023)	-	ND (0.030)
1,1,2,2-Tetrachloroethane	mg/kg	3	ND (0.0019)	-	ND (0.0024)
Tetrachloroethene	mg/kg	5	0.00079 J	-	ND (0.0024)
Toluene	mg/kg	91000	ND (0.00094)	-	ND (0.0012)
1,2,3-Trichlorobenzene	mg/kg	-	ND (0.0047)	-	ND (0.0060)
1,2,4-Trichlorobenzene	mg/kg	820	ND (0.0047)	-	ND (0.0060)
1,1,1-Trichloroethane	mg/kg	4200	ND (0.0019)	-	ND (0.0024)
1,1,2-Trichloroethane	mg/kg	6	ND (0.0019)	-	ND (0.0024)
Trichloroethene	mg/kg	20	0.00043 J	-	ND (0.0012)
Trichlorofluoromethane	mg/kg	340000	ND (0.0047)	-	ND (0.0060)
Vinyl chloride	mg/kg	2	ND (0.0019)	-	ND (0.0024)
m,p-Xylene	mg/kg	170000	ND (0.00094)	-	ND (0.0012)
o-Xylene	mg/kg	170000	ND (0.00094)	-	ND (0.0012)
Xylene (total)	mg/kg	170000	ND (0.00094)	-	ND (0.0012)
GC/MS Volatile TIC					
Total TIC, Volatile	mg/kg	-	0	-	0
Total Alkanes	mg/kg	-	0	-	0

Table 4-1  
Former Hess Terminal - 750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Sample Results at AOC 99 - Chemical Storage Adjacent to Cooling Water Tower

Client Sample ID:		NJ Non-Residential Direct Contact Soil	API-SS-11/12	API-SS-11/12	API-SS-11/12A
Lab Sample ID:			JC1987-4	JC1987-4R	JC2306-5
Date Sampled:			8/20/2015	8/20/2015	8/24/2015
Matrix:			Soil	Soil	Soil
Depth:			1.5-2.0 ft	1.5-2.0 ft	26.0-26.5 ft
GC/MS Semi-volatiles (SW846 8270D)					
Acenaphthene	mg/kg	37000	ND (0.036)	-	ND (0.038)
Acenaphthylene	mg/kg	300000	ND (0.036)	-	ND (0.038)
2-Chlorophenol	mg/kg	2200	ND (0.073)	-	ND (0.077)
Anthracene	mg/kg	30000	ND (0.036)	-	ND (0.038)
4-Chloro-3-methyl phenol	mg/kg	-	ND (0.18)	-	ND (0.038)
Benzo(a)anthracene	mg/kg	2	ND (0.036)	-	ND (0.19)
Benzo(a)pyrene	mg/kg	0.2	0.0147 J	-	ND (0.038)
2,4-Dichlorophenol	mg/kg	2100	ND (0.18)	-	ND (0.19)
Benzo(b)fluoranthene	mg/kg	2	ND (0.036)	-	ND (0.038)
2,4-Dimethylphenol	mg/kg	14000	ND (0.18)	-	ND (0.19)
Benzo(g,h,i)perylene	mg/kg	30000	0.0203 J	-	ND (0.19)
2,4-Dinitrophenol	mg/kg	1400	ND (0.18)	-	ND (0.038)
Benzo(k)fluoranthene	mg/kg	23	ND (0.036)	-	ND (0.038)
Chrysene	mg/kg	230	0.0180 J	-	ND (0.19)
4,6-Dinitro-o-cresol	mg/kg	68	ND (0.18)	-	ND (0.038)
Dibenzo(a,h)anthracene	mg/kg	0.2	ND (0.036)	-	ND (0.038)
Fluoranthene	mg/kg	24000	ND (0.036)	-	ND (0.038)
2-Methylphenol	mg/kg	3400	ND (0.073)	-	ND (0.077)
Fluorene	mg/kg	24000	ND (0.036)	-	ND (0.077)
3&4-Methylphenol	mg/kg	-	ND (0.073)	-	ND (0.038)
Indeno(1,2,3-cd)pyrene	mg/kg	2	ND (0.036)	-	ND (0.038)
2-Nitrophenol	mg/kg	-	ND (0.18)	-	ND (0.19)
4-Nitrophenol	mg/kg	-	ND (0.36)	-	ND (0.038)
Naphthalene	mg/kg	17	ND (0.036)	-	ND (0.38)
Phenanthrene	mg/kg	300000	0.0176 J	-	ND (0.19)
Pentachlorophenol	mg/kg	10	ND (0.18)	-	ND (0.038)
Phenol	mg/kg	210000	ND (0.073)	-	ND (0.038)
Pyrene	mg/kg	18000	ND (0.036)	-	ND (0.077)
2,3,4,6-Tetrachlorophenol	mg/kg	-	ND (0.18)	-	ND (0.19)
2,4,5-Trichlorophenol	mg/kg	68000	ND (0.18)	-	ND (0.19)
2,4,6-Trichlorophenol	mg/kg	74	ND (0.18)	-	ND (0.19)
Acetophenone	mg/kg	5	ND (0.18)	-	ND (0.19)
Atrazine	mg/kg	2400	ND (0.073)	-	ND (0.077)
4-Bromophenyl phenyl ether	mg/kg	-	ND (0.073)	-	ND (0.077)
Butyl benzyl phthalate	mg/kg	14000	ND (0.073)	-	ND (0.077)
1,1'-Biphenyl	mg/kg	34000	ND (0.073)	-	ND (0.077)
Benzaldehyde	mg/kg	68000	ND (0.18)	-	ND (0.19)
2-Chloronaphthalene	mg/kg	-	ND (0.073)	-	ND (0.077)
4-Chloroaniline	mg/kg	-	ND (0.18)	-	ND (0.19)
Carbazole	mg/kg	96	ND (0.073)	-	ND (0.077)
Caprolactam	mg/kg	340000	ND (0.073)	-	ND (0.077)
bis(2-Chloroethoxy)methane	mg/kg	-	ND (0.073)	-	ND (0.077)
bis(2-Chloroethyl)ether	mg/kg	2	ND (0.073)	-	ND (0.077)
bis(2-Chloroisopropyl)ether	mg/kg	67	ND (0.073)	-	ND (0.077)
4-Chlorophenyl phenyl ether	mg/kg	-	ND (0.073)	-	ND (0.077)
2,4-Dinitrotoluene	mg/kg	3	ND (0.036)	-	ND (0.038)
2,6-Dinitrotoluene	mg/kg	3	ND (0.036)	-	ND (0.038)
3,3'-Dichlorobenzidine	mg/kg	4	ND (0.073)	-	ND (0.077)
1,4-Dioxane	mg/kg	-	ND (0.036)	-	ND (0.038)
Dibenzofuran	mg/kg	-	ND (0.073)	-	ND (0.077)
Di-n-butyl phthalate	mg/kg	68000	ND (0.073)	-	ND (0.077)
Di-n-octyl phthalate	mg/kg	27000	ND (0.073)	-	ND (0.077)
Diethyl phthalate	mg/kg	550000	ND (0.073)	-	ND (0.077)
Dimethyl phthalate	mg/kg	-	ND (0.073)	-	ND (0.077)
bis(2-Ethylhexyl)phthalate	mg/kg	140	0.0439 J	-	ND (0.077)
Hexachlorobenzene	mg/kg	1	ND (0.073)	-	ND (0.077)
Hexachlorobutadiene	mg/kg	25	ND (0.036)	-	ND (0.038)
Hexachlorocyclopentadiene	mg/kg	110	ND (0.36)	-	ND (0.38)
Hexachloroethane	mg/kg	140	ND (0.18)	-	ND (0.19)
Isophorone	mg/kg	2000	ND (0.073)	-	ND (0.077)
2-Methylnaphthalene	mg/kg	2400	0.0225 J	-	ND (0.077)
2-Nitroaniline	mg/kg	23000	ND (0.18)	-	ND (0.19)
3-Nitroaniline	mg/kg	-	ND (0.18)	-	ND (0.19)
4-Nitroaniline	mg/kg	-	ND (0.18)	-	ND (0.19)
Nitrobenzene	mg/kg	340	ND (0.073)	-	ND (0.077)
N-Nitroso-di-n-propylamine	mg/kg	0.3	ND (0.073)	-	ND (0.077)
N-Nitrosodiphenylamine	mg/kg	390	ND (0.18)	-	ND (0.19)
1,2,4,5-Tetrachlorobenzene	mg/kg	-	ND (0.18)	-	ND (0.19)
GC/MS Semi-volatile TIC					
Total TIC, Semi-Volatile	mg/kg	-	4.11 J	-	0
Total Alkanes	mg/kg	-	0.43 J	-	0

Table 4-1  
Former Hess Terminal - 750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Sample Results at AOC 99 - Chemical Storage Adjacent to Cooling Water Tower

Client Sample ID:		NJ Non-Residential Direct Contact Soil	API-SS-11/12	API-SS-11/12	API-SS-11/12A
Lab Sample ID:			JC1987-4	JC1987-4R	JC2306-5
Date Sampled:			8/20/2015	8/20/2015	8/24/2015
Matrix:			Soil	Soil	Soil
Depth:			1.5-2.0 ft	1.5-2.0 ft	26.0-26.5 ft
<b>Metals Analysis</b>					
Aluminum	mg/kg	NA	11600	-	663
Antimony	mg/kg	450	ND (2.3)	-	ND (2.4)
Arsenic	mg/kg	19	6.5	-	ND (2.4)
Barium	mg/kg	59000	64.1	-	ND (24)
Beryllium	mg/kg	140	0.97	-	ND (0.24)
Cadmium	mg/kg	78	ND (0.58)	-	ND (0.61)
Calcium	mg/kg	-	3990	-	ND (610)
Chromium	mg/kg	-	33.3	-	3.7
Chromium, Hexavalent	mg/kg	-	-	0.61	-
Cobalt	mg/kg	590	11.8	-	ND (6.1)
Copper	mg/kg	45000	236	-	ND (3.0)
Iron	mg/kg	-	27400	-	2910
Lead	mg/kg	800	67.4	-	ND (2.4)
Magnesium	mg/kg	-	5270	-	ND (610)
Manganese	mg/kg	5900	495	-	8
Mercury	mg/kg	65	ND (0.034)	-	ND (0.036)
Nickel	mg/kg	23000	61.2	-	ND (4.9)
Potassium	mg/kg	-	1420	-	ND (1200)
Selenium	mg/kg	5700	ND (2.3)	-	ND (2.4)
Silver	mg/kg	5700	ND (0.58)	-	ND (0.61)
Sodium	mg/kg	-	ND (1200)	-	ND (1200)
Thallium	mg/kg	79	ND (1.2)	-	ND (1.2)
Vanadium	mg/kg	1100	56.9	-	6.6
Zinc	mg/kg	110000	230	-	ND (6.1)
<b>General Chemistry</b>					
Nitrogen, Ammonia	mg/kg	-	ND (2.5)	-	ND (2.6)
Redox Potential Vs H2	mv	-	-	270	-
Solids, Percent	%	-	90.4	-	83.3
Sulfide, Neutral Extraction	mg/kg	-	ND (4.3)	-	ND (4.7)
pH	su	-	8.45	8.64	7.51
All results in mg/kg unless otherwise noted.					
mg/kg	milligrams per kilogram				
J	Estimated Value				
NS	Not Sampled				
ND	Not Detected				
NA	Not Analyzed				
( )	Method Detection Limit				
B	Compound Found in Blank				
**	Health based standard defaults to soil saturation limit				
<sup>b</sup>	Result is from 2nd run				
<sup>a</sup>	Result is from 2nd run				
	Exceeds NJDEP Non-Residential Soil Remediation Standard				

Table 4-1  
Hess Corporation - Former Port Reading Complex  
750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Analytical Results - AOC-12 - Vacant Land (South)

Client Sample ID:		NJ Non- Residential Direct Contact Soil	VLLD-SS-1 (3.5-4.0)	VLLD-SS-2 (3.5-4.0)	VLLD-SS-3 (4.5-5.0)
Lab Sample ID:			JB74805-1	JB74805-2	JB74805-3
Date Sampled:			8/22/2014	8/22/2014	8/22/2014
Sample Depth:			3.5-4.0	3.5-4.0	4.5-5.0
Matrix:			Soil	Soil	Soil
<b>Volatile Organic Compounds</b>					
Acetone	mg/kg	-	ND	ND	ND
Benzene	mg/kg	5	ND	ND	ND
Bromochloromethane	mg/kg	-	ND	ND	ND
Bromodichloromethane	mg/kg	3	ND	ND	ND
Bromofrom	mg/kg	280	ND	ND	ND
Bromomethane	mg/kg	59	ND	ND	ND
2-Butanone (MEK)	mg/kg	44000	ND	ND	ND
Carbon disulfide	mg/kg	110000	ND	ND	ND
Carbon tetrachloride	mg/kg	2	ND	ND	ND
Chlorobenzene	mg/kg	7400	ND	ND	ND
Chloroethane	mg/kg	1100	ND	ND	ND
Chloroform	mg/kg	2	ND	ND	ND
Chloromethane	mg/kg	12	ND	ND	ND
Cyclohexane	mg/kg	-	ND	ND	ND
1,2-Dibromo-3-chloropropane	mg/kg	0.2	ND	ND	ND
Dibromochloromethane	mg/kg	8	ND	ND	ND
1,2-Dibromoethane	mg/kg	0.04	ND	ND	ND
1,2-Dichlorobenzene	mg/kg	59000	ND	ND	ND
1,3-Dichlorobenzene	mg/kg	59000	ND	ND	ND
1,4-Dichlorobenzene	mg/kg	13	ND	ND	0.0898 J
Dichlorodifluoromethane	mg/kg	230000	ND	ND	ND
1,1-Dichloroethane	mg/kg	24	ND	ND	ND
1,2-Dichloroethane	mg/kg	3	ND	ND	ND
1,1-Dichloroethene	mg/kg	150	ND	ND	ND
cis-1,2-Dichloroethene	mg/kg	560	ND	ND	ND
trans-1,2-Dichloroethene	mg/kg	720	ND	ND	ND
1,2-Dichloropropane	mg/kg	5	ND	ND	ND
cis-1,3-Dichloropropene	mg/kg	7	ND	ND	ND
trans-1,3-Dichloropropene	mg/kg	7	ND	ND	ND
Ethylbenzene	mg/kg	110000	ND	ND	ND
Freon 113	mg/kg	-	ND	ND	ND
2-Hexanone	mg/kg	-	ND	ND	ND
Isopropylbenzene	mg/kg	-	ND	ND	ND
Methyl Acetate	mg/kg	-	ND	ND	0.232 J
Methylcyclohexane	mg/kg	-	ND	ND	ND
Methyl Tert Butyl Ether	mg/kg	320	ND	ND	ND
4-Methyl-2-pentanone(MIBK)	mg/kg	-	ND	ND	ND
Methylene chloride	mg/kg	97	ND	ND	ND
Styrene	mg/kg	260	ND	ND	ND
1,1,2,2-Tetrachloroethane	mg/kg	3	ND	ND	ND
Tetrachloroethene	mg/kg	5	ND	ND	ND
Toluene	mg/kg	91000	ND	ND	ND
1,2,3-Trichlorobenzene	mg/kg	-	ND	ND	ND
1,2,4-Trichlorobenzene	mg/kg	820	ND	ND	ND
1,1,1-Trichloroethane	mg/kg	4200	ND	ND	ND
1,1,2-Trichloroethane	mg/kg	6	ND	ND	ND
Trichloroethene	mg/kg	20	ND	ND	ND
Trichloroethene	mg/kg	20	ND	ND	ND
Trichlorofluoromethane	mg/kg	340000	ND	ND	ND
Vinyl chloride	mg/kg	2	ND	ND	ND
m,p-Xylene	mg/kg	170000	ND	ND	ND
o-Xylene	mg/kg	170000	ND	ND	ND
Xylene (total)	mg/kg	170000	ND	ND	ND
<b>Volatile Organic Tentatively Identified Compounds</b>					
Total TIC, Volatile	mg/kg	-	0.82 J	0	9.72 J
Total Alkanes	mg/kg	-	0	0	3.96 J



Table 4-1  
Hess Corporation - Former Port Reading Complex  
750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Analytical Results - AOC-12 - Vacant Land (South)

Client Sample ID:		NJ Non- Residential Direct Contact Soil	VLLD-SS-1 (3.5-4.0)	VLLD-SS-2 (3.5-4.0)	VLLD-SS-3 (4.5-5.0)
Lab Sample ID:			JB74805-1	JB74805-2	JB74805-3
Date Sampled:			8/22/2014	8/22/2014	8/22/2014
Sample Depth:			3.5-4.0	3.5-4.0	4.5-5.0
Matrix:			Soil	Soil	Soil
Semi-Volatile Organic Compounds					
2-Chlorophenol	mg/kg	2200	ND	ND	ND
4-Chloro-3-methyl phenol	mg/kg	-	ND	ND	ND
2,4-Dichlorophenol	mg/kg	2100	ND	ND	ND
2,4-Dimethylphenol	mg/kg	14000	ND	ND	ND
2,4-Dinitrophenol	mg/kg	1400	ND	ND	ND
4,6-Dinitro-o-cresol	mg/kg	68	ND	ND	ND
2-Methylphenol	mg/kg	3400	ND	ND	ND
3&4-Methylphenol	mg/kg	-	ND	ND	ND
2-Nitrophenol	mg/kg	-	ND	ND	ND
4-Nitrophenol	mg/kg	-	ND	ND	ND
Pentachlorophenol	mg/kg	10	ND	ND	ND
Phenol	mg/kg	210000	ND	ND	ND
2,3,4,6-Tetrachlorophenol	mg/kg	-	ND	ND	ND
2,4,5-Trichlorophenol	mg/kg	68000	ND	ND	ND
2,4,6-Trichlorophenol	mg/kg	74	ND	ND	ND
Acenaphthene	mg/kg	37000	ND	ND	ND
Acenaphthylene	mg/kg	300000	ND	ND	0.152
Acetophenone	mg/kg	5	ND	ND	ND
Anthracene	mg/kg	30000	ND	ND	ND
Atrazine	mg/kg	2400	ND	ND	ND
Benzo(a)anthracene	mg/kg	2	0.0150 J	0.0144 J	0.496
Benzo(a)pyrene	mg/kg	0.2	ND	ND	0.467
Benzo(b)fluoranthene	mg/kg	2	0.0138 J	ND	0.516
Benzo(g,h,i)perylene	mg/kg	30000	ND	ND	0.293
Benzo(k)fluoranthene	mg/kg	23	ND	ND	0.133
4-Bromophenyl phenyl ether	mg/kg	-	ND	ND	ND
Butyl benzyl phthalate	mg/kg	14000	ND	ND	ND
1,1'-Biphenyl	mg/kg	34000	ND	ND	ND
Benzaldehyde	mg/kg	68000	ND	ND	ND
2-Chloronaphthalene	mg/kg	-	ND	ND	ND
4-Chloroaniline	mg/kg	-	ND	ND	ND
Carbazole	mg/kg	96	ND	ND	ND
Caprolactam	mg/kg	340000	ND	ND	ND
Chrysene	mg/kg	230	0.0184 J	0.0149 J	0.687
bis(2-Chloroethoxy)methane	mg/kg	-	ND	ND	ND
bis(2-Chloroethyl)ether	mg/kg	2	ND	ND	ND
bis(2-Chloroisopropyl)ether	mg/kg	67	ND	ND	ND
4-Chlorophenyl phenyl ether	mg/kg	-	ND	ND	ND
2,4-Dinitrotoluene	mg/kg	3	ND	ND	ND
2,6-Dinitrotoluene	mg/kg	3	ND	ND	ND
3,3'-Dichlorobenzidine	mg/kg	4	ND	ND	ND
1,4-Dioxane	mg/kg	-	ND	ND	ND
Dibenzo(a,h)anthracene	mg/kg	0.2	ND	ND	0.0705
Dibenzofuran	mg/kg	-	ND	ND	ND
Di-n-butyl phthalate	mg/kg	68000	ND	ND	0.100 J
Di-n-octyl phthalate	mg/kg	27000	ND	ND	ND
Diethyl phthalate	mg/kg	550000	ND	ND	ND
Dimethyl phthalate	mg/kg	-	ND	ND	ND
bis(2-Ethylhexyl)phthalate	mg/kg	140	ND	ND	22.3
Fluoranthene	mg/kg	24000	0.0204 J	ND	1.46
Fluorene	mg/kg	24000	ND	ND	ND
Hexachlorobenzene	mg/kg	1	ND	ND	ND
Hexachlorobutadiene	mg/kg	25	ND	ND	ND
Hexachlorocyclopentadiene	mg/kg	110	ND	ND	ND
Hexachloroethane	mg/kg	140	ND	ND	ND
Indeno(1,2,3-cd)pyrene	mg/kg	2	ND	ND	0.239
Isophorone	mg/kg	2000	ND	ND	ND
2-Methylnaphthalene	mg/kg	2400	ND	ND	ND
2-Nitroaniline	mg/kg	23000	ND	ND	ND
3-Nitroaniline	mg/kg	-	ND	ND	ND
4-Nitroaniline	mg/kg	-	ND	ND	ND
Naphthalene	mg/kg	17	ND	ND	0.0501 J
Nitrobenzene	mg/kg	340	ND	ND	ND
N-Nitroso-di-n-propylamine	mg/kg	0.3	ND	ND	ND
N-Nitrosodiphenylamine	mg/kg	390	ND	ND	ND
Phenanthrene	mg/kg	300000	ND	ND	0.611
Pyrene	mg/kg	18000	0.0189 J	0.0139 J	1.36
1,2,4,5-Tetrachlorobenzene	mg/kg	-	ND	ND	ND

Table 4-1  
Hess Corporation - Former Port Reading Complex  
750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Analytical Results - AOC-12 - Vacant Land (South)

Client Sample ID:		NJ Non- Residential Direct Contact Soil	VLLD-SS-1 (3.5-4.0)	VLLD-SS-2 (3.5-4.0)	VLLD-SS-3 (4.5-5.0)
Lab Sample ID:			JB74805-1	JB74805-2	JB74805-3
Date Sampled:			8/22/2014	8/22/2014	8/22/2014
Sample Depth:			3.5-4.0	3.5-4.0	4.5-5.0
Matrix:			Soil	Soil	Soil
Semi-Volatile Organic Tentatively Identified Compounds					
Total TIC, Semi-Volatile	mg/kg	-	0	0.19 J	46.3 J
Total Alkanes	mg/kg	-	0	0	22.2 J
Pesticides and Herbicides					
Aldrin	mg/kg	0.2	ND	ND	ND
alpha-BHC	mg/kg	0.5	ND	ND	ND
beta-BHC	mg/kg	2	ND	ND	ND
delta-BHC	mg/kg	-	ND	ND	ND
gamma-BHC (Lindane)	mg/kg	2	ND	ND	ND
alpha-Chlordane	mg/kg	1	ND	ND	ND
gamma-Chlordane	mg/kg	1	ND	ND	ND
Chlordane (alpha and gamma)	mg/kg	1	ND	ND	ND
Dieldrin	mg/kg	0.2	ND	ND	ND
4,4'-DDD	mg/kg	13	0.0018	ND	ND
4,4'-DDE	mg/kg	9	0.0046	ND	ND
4,4'-DDT	mg/kg	8	0.0025	ND	ND
Endrin	mg/kg	340	ND	ND	ND
Endosulfan sulfate	mg/kg	6800	ND	ND	ND
Endrin aldehyde	mg/kg	-	ND	ND	ND
Endosulfan-I	mg/kg	6800	ND	ND	ND
Endosulfan-II	mg/kg	6800	ND	ND	ND
Heptachlor	mg/kg	0.7	ND	ND	ND
Heptachlor epoxide	mg/kg	0.3	ND	ND	ND
Methoxychlor	mg/kg	5700	ND	ND	ND
Endrin ketone	mg/kg	-	ND	ND	ND
Toxaphene	mg/kg	3	ND	ND	ND
Polychlorinated Biphenyls					
Aroclor 1016	mg/kg	1	ND	ND	ND
Aroclor 1221	mg/kg	1	ND	ND	ND
Aroclor 1232	mg/kg	1	ND	ND	ND
Aroclor 1242	mg/kg	1	ND	ND	ND
Aroclor 1248	mg/kg	1	ND	ND	2.23
Aroclor 1254	mg/kg	1	ND	ND	0.716
Aroclor 1260	mg/kg	1	ND	ND	ND
Aroclor 1268	mg/kg	1	ND	ND	ND
Aroclor 1262	mg/kg	1	ND	ND	ND
Metal Compounds					
Aluminum	mg/kg	-	3490	3730	16600
Antimony	mg/kg	450	ND	ND	4.7
Arsenic	mg/kg	19	16.9	7.8	92.1
Barium	mg/kg	59000	ND	ND	393
Beryllium	mg/kg	140	0.79	0.56	1.7
Cadmium	mg/kg	78	0.84	ND	12
Calcium	mg/kg	-	ND	ND	6370
Chromium	mg/kg	-	69.1	21.4	245
Cobalt	mg/kg	590	ND	ND	14.2
Copper	mg/kg	45000	24.4	9	769
Iron	mg/kg	-	34900	24900	42000
Lead	mg/kg	800	13.2	6.6	327
Magnesium	mg/kg	-	976	1830	5700
Manganese	mg/kg	5900	142	118	347
Mercury	mg/kg	65	0.093	ND	8.3
Nickel	mg/kg	23000	10.3	11.2	58.5
Potassium	mg/kg	-	ND	ND	2980
Selenium	mg/kg	5700	ND	ND	11.9
Silver	mg/kg	5700	ND	ND	6.2
Sodium	mg/kg	-	ND	ND	ND
Thallium	mg/kg	79	ND	ND	ND
Vanadium	mg/kg	1100	37.5	17.9	78.5
Zinc	mg/kg	110000	50.9	37.4	621
General Chemistry					
Cyanide	mg/kg	23000	ND	ND	0.71
Solids, Percent	%	-	94.6	88	51.7
All results in mg/kg unless otherwise noted.					
mg/kg	milligrams per kilogram				
J	Estimated Value				
NS	Not Sampled				
ND	Not Detected				
NA	Not Analyzed				
( )	Method Detection Limit				
B	Compound Found in Blank				
**	Health based standard defaults to soil saturation limit				
b	Result is from 2nd run				
a	Result is from 2nd run				
	Exceeds NJDEP Non-Residential Soil Remediation Standard				

Table 4-59  
Former Hess Terminal - 750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Sample Results at AOC 107 - Drum Storage Compound

Client Sample ID:		NJ Non-Residential Direct Contact Soil	DCW-SS-1	DCW-SS-1	DCW-SS-2	DCW-SS-2	DCW-SS-2	DCW-SS-3	DCW-SS-3	DCW-SS-4	DCW-SS-4	DCW-SS-5	DCW-SS-5
Lab Sample ID:			JB98641-1	JB98641-1U	JB98641-2	JB98641-2R	JB98641-2U	JB98641-3	JB98641-3U	JB98641-4	JB98641-4R	JB98641-5	JB98641-5U
Date Sampled:			7/7/2015	7/7/2015	7/7/2015	7/7/2015	7/7/2015	7/7/2015	7/7/2015	7/7/2015	7/7/2015	7/7/2015	7/7/2015
Matrix:			Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Depth:			6.5-7.0'	6.5-7.0'	5.5-6.0'	5.5-6.0'	5.5-6.0'	6.5-7.0'	6.5-7.0'	6.5-7.0'	6.5-7.0'	6.5-7.0'	6.5-7.0'
<b>GC/MS Volatiles (SW846 8260C)</b>													
Acetone	mg/kg	NA	0.0154	-	0.02	-	-	0.0278	-	0.025	-	0.0059 J	-
Benzene	mg/kg	5	ND (0.00046)	-	ND (0.00052)	-	-	ND (0.00052)	-	ND (0.00046)	-	ND (0.00048)	-
Bromochloromethane	mg/kg	-	ND (0.0046)	-	ND (0.0052)	-	-	ND (0.0052)	-	ND (0.0046)	-	ND (0.0048)	-
Bromodichloromethane	mg/kg	3	ND (0.0018)	-	ND (0.0021)	-	-	ND (0.0021)	-	ND (0.0018)	-	ND (0.0019)	-
Bromoform	mg/kg	280	ND (0.0046)	-	ND (0.0052)	-	-	ND (0.0052)	-	ND (0.0046)	-	ND (0.0048)	-
Bromomethane	mg/kg	59	ND (0.0046)	-	ND (0.0052)	-	-	ND (0.0052)	-	ND (0.0046)	-	ND (0.0048)	-
2-Butanone (MEK)	mg/kg	44000	ND (0.0091)	-	ND (0.010)	-	-	ND (0.010)	-	ND (0.0092)	-	ND (0.0096)	-
Carbon disulfide	mg/kg	110000	ND (0.0018)	-	ND (0.0021)	-	-	ND (0.0021)	-	ND (0.0018)	-	ND (0.0019)	-
Carbon tetrachloride	mg/kg	2	ND (0.0018)	-	ND (0.0021)	-	-	ND (0.0021)	-	ND (0.0018)	-	ND (0.0019)	-
Chlorobenzene	mg/kg	7400	ND (0.0018)	-	ND (0.0021)	-	-	ND (0.0021)	-	ND (0.0018)	-	ND (0.0019)	-
Chloroethane	mg/kg	1100	ND (0.0046)	-	ND (0.0052)	-	-	ND (0.0052)	-	ND (0.0046)	-	ND (0.0048)	-
Chloroform	mg/kg	2	ND (0.0018)	-	ND (0.0021)	-	-	ND (0.0021)	-	ND (0.0018)	-	ND (0.0019)	-
Chloromethane	mg/kg	12	ND (0.0046)	-	ND (0.0052)	-	-	ND (0.0052)	-	ND (0.0046)	-	ND (0.0048)	-
Cyclohexane	mg/kg	-	ND (0.0018)	-	ND (0.0021)	-	-	ND (0.0021)	-	ND (0.0018)	-	ND (0.0019)	-
1,2-Dibromo-3-chloropropane	mg/kg	0.2	ND (0.0018)	-	ND (0.0021)	-	-	ND (0.0021)	-	ND (0.0018)	-	ND (0.0019)	-
Dibromochloromethane	mg/kg	8	ND (0.0018)	-	ND (0.0021)	-	-	ND (0.0021)	-	ND (0.0018)	-	ND (0.0019)	-
1,2-Dibromomethane	mg/kg	0.04	ND (0.00091)	-	ND (0.0010)	-	-	ND (0.0010)	-	ND (0.00092)	-	ND (0.00096)	-
1,2-Dichlorobenzene	mg/kg	59000	ND (0.00091)	-	ND (0.0010)	-	-	ND (0.0010)	-	ND (0.00092)	-	ND (0.00096)	-
1,3-Dichlorobenzene	mg/kg	59000	ND (0.00091)	-	ND (0.0010)	-	-	ND (0.0010)	-	ND (0.00092)	-	ND (0.00096)	-
1,4-Dichlorobenzene	mg/kg	13	ND (0.00091)	-	ND (0.0010)	-	-	ND (0.0010)	-	ND (0.00092)	-	ND (0.00096)	-
Dichlorodifluoromethane	mg/kg	230000	ND (0.0046)	-	ND (0.0052)	-	-	ND (0.0052)	-	ND (0.0046)	-	ND (0.0048)	-
1,1-Dichloroethane	mg/kg	24	ND (0.00091)	-	ND (0.0010)	-	-	ND (0.0010)	-	ND (0.00092)	-	ND (0.00096)	-
1,2-Dichloroethane	mg/kg	3	ND (0.00091)	-	ND (0.0010)	-	-	ND (0.0010)	-	ND (0.00092)	-	ND (0.00096)	-
1,1-Dichloroethene	mg/kg	150	ND (0.00091)	-	ND (0.0010)	-	-	ND (0.0010)	-	ND (0.00092)	-	ND (0.00096)	-
cis-1,2-Dichloroethene	mg/kg	560	ND (0.00091)	-	ND (0.0010)	-	-	ND (0.0010)	-	ND (0.00092)	-	ND (0.00096)	-
trans-1,2-Dichloroethene	mg/kg	720	ND (0.00091)	-	ND (0.0010)	-	-	ND (0.0010)	-	ND (0.00092)	-	ND (0.00096)	-
1,2-Dichloropropane	mg/kg	5	ND (0.0018)	-	ND (0.0021)	-	-	ND (0.0021)	-	ND (0.0018)	-	ND (0.0019)	-
cis-1,3-Dichloropropene	mg/kg	7	ND (0.0018)	-	ND (0.0021)	-	-	ND (0.0021)	-	ND (0.0018)	-	ND (0.0019)	-
trans-1,3-Dichloropropene	mg/kg	7	ND (0.0018)	-	ND (0.0021)	-	-	ND (0.0021)	-	ND (0.0018)	-	ND (0.0019)	-
Ethylbenzene	mg/kg	110000	ND (0.00091)	-	ND (0.0010)	-	-	ND (0.0010)	-	ND (0.00092)	-	ND (0.00096)	-
Freon 113	mg/kg	-	ND (0.0046)	-	ND (0.0052)	-	-	ND (0.0052)	-	ND (0.0046)	-	ND (0.0048)	-
2-Hexanone	mg/kg	-	ND (0.0046)	-	ND (0.0052)	-	-	ND (0.0052)	-	ND (0.0046)	-	ND (0.0048)	-
Isopropylbenzene	mg/kg	-	ND (0.0018)	-	ND (0.0021)	-	-	ND (0.0021)	-	ND (0.0018)	-	ND (0.0019)	-
Methyl Acetate	mg/kg	NA	ND (0.0046)	-	ND (0.0052)	-	-	ND (0.0052)	-	ND (0.0046)	-	ND (0.0048)	-
Methyldichloromethane	mg/kg	-	ND (0.0018)	-	ND (0.0021)	-	-	ND (0.0021)	-	ND (0.0018)	-	ND (0.0019)	-
Methyl Tert Butyl Ether	mg/kg	320	ND (0.00091)	-	ND (0.0010)	-	-	ND (0.0010)	-	ND (0.00092)	-	ND (0.00096)	-
4-Methyl-2-pentanone (MIBK)	mg/kg	-	ND (0.0046)	-	ND (0.0052)	-	-	ND (0.0052)	-	ND (0.0046)	-	ND (0.0048)	-
Methylene chloride	mg/kg	97	ND (0.0046)	-	ND (0.0052)	-	-	ND (0.0052)	-	ND (0.0046)	-	ND (0.0048)	-
Styrene	mg/kg	260	ND (0.0018)	-	ND (0.0021)	-	-	ND (0.0021)	-	ND (0.0018)	-	ND (0.0019)	-
Tert Butyl Alcohol	mg/kg	11000	ND (0.023)	-	ND (0.026)	-	-	ND (0.026)	-	ND (0.023)	-	ND (0.024)	-
1,1,2,2-Tetrachloroethane	mg/kg	3	ND (0.0018)	-	ND (0.0021)	-	-	ND (0.0021)	-	ND (0.0018)	-	ND (0.0019)	-
Tetrachloroethene	mg/kg	5	ND (0.0018)	-	ND (0.0021)	-	-	ND (0.0021)	-	ND (0.0018)	-	ND (0.0019)	-
Toluene	mg/kg	91000	0.00041 J	-	0.00055 J	-	-	0.00080 J	-	0.00064 J	-	0.00050 J	-
1,2,3-Trichlorobenzene	mg/kg	-	ND (0.0046)	-	ND (0.0052)	-	-	ND (0.0052)	-	ND (0.0046)	-	ND (0.0048)	-
1,2,4-Trichlorobenzene	mg/kg	820	ND (0.0046)	-	ND (0.0052)	-	-	ND (0.0052)	-	ND (0.0046)	-	ND (0.0048)	-
1,1,1-Trichloroethane	mg/kg	4200	ND (0.0018)	-	ND (0.0021)	-	-	ND (0.0021)	-	ND (0.0018)	-	ND (0.0019)	-
1,1,2-Trichloroethane	mg/kg	6	ND (0.0018)	-	ND (0.0021)	-	-	ND (0.0021)	-	ND (0.0018)	-	ND (0.0019)	-
Trichloroethene	mg/kg	20	ND (0.00091)	-	ND (0.0010)	-	-	ND (0.0010)	-	ND (0.00092)	-	ND (0.00096)	-
Trichlorofluoromethane	mg/kg	340000	ND (0.0046)	-	ND (0.0052)	-	-	ND (0.0052)	-	ND (0.0046)	-	ND (0.0048)	-
Vinyl chloride	mg/kg	2	ND (0.0018)	-	ND (0.0021)	-	-	ND (0.0021)	-	ND (0.0018)	-	ND (0.0019)	-
m,p-Xylene	mg/kg	170000	ND (0.00091)	-	ND (0.0010)	-	-	ND (0.0010)	-	ND (0.00092)	-	ND (0.00096)	-
o-Xylene	mg/kg	170000	ND (0.00091)	-	ND (0.0010)	-	-	ND (0.0010)	-	ND (0.00092)	-	ND (0.00096)	-
Xylene (total)	mg/kg	170000	ND (0.00091)	-	ND (0.0010)	-	-	ND (0.0010)	-	ND (0.00092)	-	ND (0.00096)	-
<b>GC/MS Volatile TIC</b>													
Total TIC, Volatile	mg/kg	-	0	-	0	-	-	0	-	0	-	0	-
Total Alkanes	mg/kg	-	0	-	0	-	-	0	-	0	-	0	-

Table 4-59  
Former Hess Terminal - 750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Sample Results at AOC 107 - Drum Storage Compound

Client Sample ID:		NJ Non-Residential Direct Contact Soil	DCW-SS-1	DCW-SS-1	DCW-SS-2	DCW-SS-2	DCW-SS-2	DCW-SS-3	DCW-SS-3	DCW-SS-4	DCW-SS-4	DCW-SS-5	DCW-SS-5
Lab Sample ID:			JB98641-1	JB98641-1U	JB98641-2	JB98641-2R	JB98641-2U	JB98641-3	JB98641-3U	JB98641-4	JB98641-4R	JB98641-5	JB98641-5U
Date Sampled:			7/7/2015	7/7/2015	7/7/2015	7/7/2015	7/7/2015	7/7/2015	7/7/2015	7/7/2015	7/7/2015	7/7/2015	7/7/2015
Matrix:			Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Depth:			6.5-7.0'	6.5-7.0'	5.5-6.0'	5.5-6.0'	5.5-6.0'	6.5-7.0'	6.5-7.0'	6.5-7.0'	6.5-7.0'	6.5-7.0'	6.5-7.0'
<b>GC/MS Semi-volatiles (SW846 8270D)</b>													
2-Chlorophenol	mg/kg	2200	ND (0.077)	-	ND (0.074)	-	-	ND (0.075)	-	ND (0.072)	-	ND (0.074)	-
4-Chloro-3-methyl phenol	mg/kg	-	ND (0.19)	-	ND (0.19)	-	-	ND (0.19)	-	ND (0.18)	-	ND (0.18)	-
2,4-Dichlorophenol	mg/kg	2100	ND (0.19)	-	ND (0.19)	-	-	ND (0.19)	-	ND (0.18)	-	ND (0.18)	-
2,4-Dimethylphenol	mg/kg	14000	ND (0.19)	-	ND (0.19)	-	-	ND (0.19)	-	ND (0.19)	-	ND (0.18)	-
2,4-Dinitrophenol	mg/kg	1400	ND (0.19)	-	ND (0.19)	-	-	ND (0.19)	-	ND (0.18)	-	ND (0.18)	-
4,6-Dinitro-o-cresol	mg/kg	68	ND (0.19)	-	ND (0.19)	-	-	ND (0.19)	-	ND (0.18)	-	ND (0.18)	-
2-Methylphenol	mg/kg	3400	ND (0.077)	-	ND (0.074)	-	-	ND (0.075)	-	ND (0.072)	-	ND (0.074)	-
3&4-Methylphenol	mg/kg	-	ND (0.077)	-	ND (0.074)	-	-	ND (0.075)	-	ND (0.072)	-	ND (0.074)	-
2-Nitrophenol	mg/kg	-	ND (0.19)	-	ND (0.19)	-	-	ND (0.19)	-	ND (0.18)	-	ND (0.18)	-
4-Nitrophenol	mg/kg	-	ND (0.39)	-	ND (0.37)	-	-	ND (0.38)	-	ND (0.36)	-	ND (0.37)	-
Pentachlorophenol	mg/kg	10	ND (0.19)	-	ND (0.19)	-	-	ND (0.19)	-	ND (0.18)	-	ND (0.18)	-
Phenol	mg/kg	210000	ND (0.077)	-	ND (0.074)	-	-	ND (0.075)	-	ND (0.072)	-	ND (0.074)	-
2,3,4,6-Tetrachlorophenol	mg/kg	-	ND (0.19)	-	ND (0.19)	-	-	ND (0.19)	-	ND (0.18)	-	ND (0.18)	-
2,4,5-Trichlorophenol	mg/kg	68000	ND (0.19)	-	ND (0.19)	-	-	ND (0.19)	-	ND (0.18)	-	ND (0.18)	-
2,4,6-Trichlorophenol	mg/kg	74	ND (0.19)	-	ND (0.19)	-	-	ND (0.19)	-	ND (0.18)	-	ND (0.18)	-
Acenaphthene	mg/kg	37000	ND (0.039)	-	ND (0.037)	-	-	ND (0.038)	-	ND (0.036)	-	ND (0.037)	-
Acenaphthylene	mg/kg	300000	ND (0.039)	-	ND (0.037)	-	-	ND (0.038)	-	ND (0.036)	-	ND (0.037)	-
Acetophenone	mg/kg	5	ND (0.19)	-	ND (0.19)	-	-	ND (0.19)	-	ND (0.18)	-	ND (0.18)	-
Anthracene	mg/kg	30000	ND (0.039)	-	ND (0.037)	-	-	ND (0.038)	-	ND (0.036)	-	ND (0.037)	-
Atrazine	mg/kg	2400	ND (0.077)	-	ND (0.074)	-	-	ND (0.075)	-	ND (0.072)	-	ND (0.074)	-
Benzo(a)anthracene	mg/kg	2	ND (0.039)	-	ND (0.037)	-	-	ND (0.038)	-	ND (0.036)	-	ND (0.037)	-
Benzo(a)pyrene	mg/kg	0.2	ND (0.039)	-	ND (0.037)	-	-	ND (0.038)	-	ND (0.036)	-	ND (0.037)	-
Benzo(b)fluoranthene	mg/kg	2	ND (0.039)	-	ND (0.037)	-	-	ND (0.038)	-	ND (0.036)	-	ND (0.037)	-
Benzo(g,h,i)perylene	mg/kg	30000	ND (0.039)	-	ND (0.037)	-	-	ND (0.038)	-	ND (0.036)	-	ND (0.037)	-
Benzo(k)fluoranthene	mg/kg	23	ND (0.039)	-	ND (0.037)	-	-	ND (0.038)	-	ND (0.036)	-	ND (0.037)	-
4-Bromophenyl phenyl ether	mg/kg	-	ND (0.077)	-	ND (0.074)	-	-	ND (0.075)	-	ND (0.072)	-	ND (0.074)	-
Butyl benzyl phthalate	mg/kg	14000	ND (0.077)	-	ND (0.074)	-	-	ND (0.075)	-	ND (0.072)	-	ND (0.074)	-
1,1'-Bi(phenyl)	mg/kg	34000	ND (0.077)	-	ND (0.074)	-	-	ND (0.075)	-	ND (0.072)	-	ND (0.074)	-
Benzaldehyde	mg/kg	68000	ND (0.19)	-	ND (0.19)	-	-	ND (0.19)	-	ND (0.18)	-	ND (0.18)	-
2-Chloronaphthalene	mg/kg	-	ND (0.077)	-	ND (0.074)	-	-	ND (0.075)	-	ND (0.072)	-	ND (0.074)	-
4-Chloroaniline	mg/kg	-	ND (0.19)	-	ND (0.19)	-	-	ND (0.19)	-	ND (0.18)	-	ND (0.18)	-
Carbazole	mg/kg	96	ND (0.077)	-	ND (0.074)	-	-	ND (0.075)	-	ND (0.072)	-	ND (0.074)	-
Caprolactam	mg/kg	340000	ND (0.077)	-	ND (0.074)	-	-	ND (0.075)	-	ND (0.072)	-	ND (0.074)	-
Chrysene	mg/kg	230	ND (0.039)	-	ND (0.037)	-	-	ND (0.038)	-	ND (0.036)	-	ND (0.037)	-
bis(2-Chloroethoxy)methane	mg/kg	-	ND (0.077)	-	ND (0.074)	-	-	ND (0.075)	-	ND (0.072)	-	ND (0.074)	-
bis(2-Chloroethoxy)ether	mg/kg	2	ND (0.077)	-	ND (0.074)	-	-	ND (0.075)	-	ND (0.072)	-	ND (0.074)	-
bis(2-Chloroisopropyl)ether	mg/kg	67	ND (0.077)	-	ND (0.074)	-	-	ND (0.075)	-	ND (0.072)	-	ND (0.074)	-
4-Chlorophenyl phenyl ether	mg/kg	-	ND (0.077)	-	ND (0.074)	-	-	ND (0.075)	-	ND (0.072)	-	ND (0.074)	-
2,4-Dinitrotoluene	mg/kg	3	ND (0.039)	-	ND (0.037)	-	-	ND (0.038)	-	ND (0.036)	-	ND (0.037)	-
2,6-Dinitrotoluene	mg/kg	3	ND (0.039)	-	ND (0.037)	-	-	ND (0.038)	-	ND (0.036)	-	ND (0.037)	-
3,3'-Dichlorobenzidine	mg/kg	4	ND (0.077)	-	ND (0.074)	-	-	ND (0.075)	-	ND (0.072)	-	ND (0.074)	-
1,4-Dioxane	mg/kg	-	ND (0.039)	-	ND (0.037)	-	-	ND (0.038)	-	ND (0.036)	-	ND (0.037)	-
Di(2-chlorophenyl) ether	mg/kg	0.2	ND (0.039)	-	ND (0.037)	-	-	ND (0.038)	-	ND (0.036)	-	ND (0.037)	-
Dibenzofuran	mg/kg	-	ND (0.077)	-	ND (0.074)	-	-	ND (0.075)	-	ND (0.072)	-	ND (0.074)	-
Di-n-butyl phthalate	mg/kg	68000	ND (0.077)	-	ND (0.074)	-	-	ND (0.075)	-	ND (0.072)	-	ND (0.074)	-
Di-n-octyl phthalate	mg/kg	27000	ND (0.077)	-	ND (0.074)	-	-	ND (0.075)	-	ND (0.072)	-	ND (0.074)	-
Diethyl phthalate	mg/kg	550000	ND (0.077)	-	ND (0.074)	-	-	ND (0.075)	-	ND (0.072)	-	ND (0.074)	-
Dimethyl phthalate	mg/kg	-	ND (0.077)	-	ND (0.074)	-	-	ND (0.075)	-	ND (0.072)	-	ND (0.074)	-
bis(2-Ethylhexyl)phthalate	mg/kg	140	ND (0.077)	-	ND (0.074)	-	-	ND (0.075)	-	ND (0.072)	-	ND (0.074)	-
Fluoranthene	mg/kg	24000	ND (0.039)	-	ND (0.037)	-	-	ND (0.038)	-	ND (0.036)	-	ND (0.037)	-
Fluorene	mg/kg	24000	ND (0.039)	-	ND (0.037)	-	-	ND (0.038)	-	ND (0.036)	-	ND (0.037)	-
Hexachlorobenzene	mg/kg	1	ND (0.077)	-	ND (0.074)	-	-	ND (0.075)	-	ND (0.072)	-	ND (0.074)	-
Hexachlorobutadiene	mg/kg	25	ND (0.039)	-	ND (0.037)	-	-	ND (0.038)	-	ND (0.036)	-	ND (0.037)	-
Hexachlorocyclopentadiene	mg/kg	110	ND (0.39)	-	ND (0.37)	-	-	ND (0.38)	-	ND (0.36)	-	ND (0.37)	-
Hexachloroethane	mg/kg	140	ND (0.19)	-	ND (0.19)	-	-	ND (0.19)	-	ND (0.18)	-	ND (0.18)	-
Indeno(1,2,3-cd)pyrene	mg/kg	2	ND (0.039)	-	ND (0.037)	-	-	ND (0.038)	-	ND (0.036)	-	ND (0.037)	-
Isophorone	mg/kg	2000	ND (0.077)	-	ND (0.074)	-	-	ND (0.075)	-	ND (0.072)	-	ND (0.074)	-
2-Methylnaphthalene	mg/kg	2400	ND (0.077)	-	ND (0.074)	-	-	ND (0.075)	-	ND (0.072)	-	ND (0.074)	-
2-Nitroaniline	mg/kg	23000	ND (0.19)	-	ND (0.19)	-	-	ND (0.19)	-	ND (0.18)	-	ND (0.18)	-
3-Nitroaniline	mg/kg	-	ND (0.19)	-	ND (0.19)	-	-	ND (0.19)	-	ND (0.18)	-	ND (0.18)	-
4-Nitroaniline	mg/kg	-	ND (0.19)	-	ND (0.19)	-	-	ND (0.19)	-	ND (0.18)	-	ND (0.18)	-
Naphthalene	mg/kg	17	ND (0.039)	-	ND (0.037)	-	-	ND (0.038)	-	ND (0.036)	-	ND (0.037)	-
Nitrobenzene	mg/kg	340	ND (0.077)	-	ND (0.074)	-	-	ND (0.075)	-	ND (0.072)	-	ND (0.074)	-
N-Nitroso-di-n-propylamine	mg/kg	0.3	ND (0.077)	-	ND (0.074)	-	-	ND (0.075)	-	ND (0.072)	-	ND (0.074)	-
N-Nitrosodiphenylamine	mg/kg	390	ND (0.19)	-	ND (0.19)	-	-	ND (0.19)	-	ND (0.18)	-	ND (0.18)	-
Phenanthrene	mg/kg	300000	ND (0.039)	-	ND (0.037)	-	-	ND (0.038)	-	ND (0.036)	-	ND (0.037)	-
Pyrene	mg/kg	18000	ND (0.039)	-	ND (0.037)	-	-	ND (0.038)	-	ND (0.036)	-	ND (0.037)	-
1,2,4,5-Tetrachlorobenzene	mg/kg	-	ND (0.19)	-	ND (0.19)	-	-	ND (0.19)	-	ND (0.18)	-	ND (0.18)	-
<b>GC/MS Semi-volatile TIC</b>													
Total TIC, Semi-Volatile	mg/kg	-	0.55 J	-	0.21 J	-	-	0.39 J	-	0	-	0	-
Total Alkanes	mg/kg	-	0	-	0	-	-	0	-	0	-	0	-
<b>GC Semi-volatiles (NJDEP EPH)</b>													
EPH (C9-C28)	mg/kg	-	ND (7.7)	-	ND (7.2)	-	-	ND (6.9)	-	ND (7.3)	-	ND (7.5)	-
EPH (>C28-C40)	mg/kg	-	ND (7.7)	-	ND (7.2)	-	-	ND (6.9)	-	ND (7.3)	-	ND (7.5)	-
Total EPH (C9-C40)	mg/kg	-	ND (7.7)	-	ND (7.2)	-	-	ND (6.9)	-	ND (7.3)	-	ND (7.5)	-

Table 4-59  
Former Hess Terminal - 750 Cliff Road, Port Reading, New Jersey  
Summary of Soil Sample Results at AOC 107 - Drum Storage Compound

Client Sample ID:		NJ Non-Residential Direct Contact Soil	DCW-SS-1	DCW-SS-1	DCW-SS-2	DCW-SS-2	DCW-SS-2	DCW-SS-2	DCW-SS-3	DCW-SS-3	DCW-SS-4	DCW-SS-4	DCW-SS-4	DCW-SS-5	DCW-SS-5
Lab Sample ID:			JB98641-1	JB98641-1U	JB98641-2	JB98641-2R	JB98641-2U	JB98641-3	JB98641-3U	JB98641-4	JB98641-4R	JB98641-5	JB98641-5U		
Date Sampled:			7/7/2015	7/7/2015	7/7/2015	7/7/2015	7/7/2015	7/7/2015	7/7/2015	7/7/2015	7/7/2015	7/7/2015	7/7/2015		
Matrix:			Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil		
Depth:			6.5-7.0'	6.5-7.0'	5.5-6.0'	5.5-6.0'	5.5-6.0'	6.5-7.0'	6.5-7.0'	6.5-7.0'	6.5-7.0'	6.5-7.0'	6.5-7.0'		
GC Semi-volatiles (SW846 8082A)															
Aroclor 1016	mg/kg	1	-	-	-	ND (0.037)	-	-	-	-	ND (0.037)	-	-		
Aroclor 1221	mg/kg	1	-	-	-	ND (0.037)	-	-	-	-	ND (0.037)	-	-		
Aroclor 1232	mg/kg	1	-	-	-	ND (0.037)	-	-	-	-	ND (0.037)	-	-		
Aroclor 1242	mg/kg	1	-	-	-	ND (0.037)	-	-	-	-	ND (0.037)	-	-		
Aroclor 1248	mg/kg	1	-	-	-	ND (0.037)	-	-	-	-	ND (0.037)	-	-		
Aroclor 1254	mg/kg	1	-	-	-	ND (0.037)	-	-	-	-	ND (0.037)	-	-		
Aroclor 1260	mg/kg	1	-	-	-	ND (0.037)	-	-	-	-	ND (0.037)	-	-		
Aroclor 1268	mg/kg	1	-	-	-	ND (0.037)	-	-	-	-	ND (0.037)	-	-		
Aroclor 1262	mg/kg	1	-	-	-	ND (0.037)	-	-	-	-	ND (0.037)	-	-		
Metals Analysis															
Aluminum	mg/kg	NA	13000	-	-	15900	-	-	-	12600	-	-	12500		
Antimony	mg/kg	450	ND (2.3)	-	-	ND (2.3)	-	-	-	ND (2.2)	-	-	ND (2.3)		
Arsenic	mg/kg	19	6.2	-	-	4.7	-	-	-	5.6	-	-	7.6		
Barium	mg/kg	59000	205	-	-	75	-	-	-	97.4	-	-	83.9		
Beryllium	mg/kg	140	0.91	-	-	0.87	-	-	-	1.1	-	-	1		
Cadmium	mg/kg	78	ND (0.58)	-	-	ND (0.57)	-	-	-	ND (0.56)	-	-	ND (0.57)		
Calcium	mg/kg	-	1200	-	-	732	-	-	-	1010	-	-	1370		
Chromium	mg/kg	-	20.6	-	-	22.7	-	-	-	22.1	-	-	27		
Cobalt	mg/kg	590	12.2	-	-	13.8	-	-	-	14.7	-	-	22.6		
Copper	mg/kg	45000	26	-	-	19.8	-	-	-	32.5	-	-	57.9		
Iron	mg/kg	-	26100	-	-	27700	-	-	-	27300	-	-	31500		
Lead	mg/kg	800	13.9	-	-	13	-	-	-	16.2	-	-	18.7		
Magnesium	mg/kg	-	4550	-	-	5880	-	-	-	4830	-	-	6240		
Manganese	mg/kg	5900	499	-	-	474	-	-	-	779	-	-	1540		
Mercury	mg/kg	65	ND (0.034)	-	-	ND (0.036)	-	-	-	ND (0.037)	-	-	0.11		
Nickel	mg/kg	23000	29.2	-	-	25.8	-	-	-	27.4	-	-	29.3		
Potassium	mg/kg	-	1380	-	-	2060	-	-	-	1560	-	-	2160		
Selenium	mg/kg	5700	ND (2.3)	-	-	ND (2.3)	-	-	-	ND (2.2)	-	-	ND (2.3)		
Silver	mg/kg	5700	ND (0.58)	-	-	0.8	-	-	-	0.56	-	-	1.1		
Sodium	mg/kg	-	ND (1200)	-	-	ND (1100)	-	-	-	ND (1100)	-	-	ND (1100)		
Thallium	mg/kg	79	ND (1.2)	-	-	ND (1.1)	-	-	-	ND (1.1)	-	-	ND (2.3) <sup>b</sup>		
Vanadium	mg/kg	1100	25.7	-	-	26	-	-	-	23.5	-	-	32.2		
Zinc	mg/kg	110000	68.6	-	-	61.7	-	-	-	66.6	-	-	67.4		
General Chemistry															
Chromium, Hexavalent	mg/kg	-	-	ND (0.47)	-	-	-	0.5	-	0.72	-	-	-	0.67	
Nitrogen, Ammonia	mg/kg	-	ND (2.7)	-	-	22.6	-	-	11.1	-	5.5	-	ND (2.6)	-	
Redox Potential Vs H2	mv	-	-	526	-	-	-	547	-	564	-	-	-	566	
Solids, Percent	%	-	85.6	-	-	87.3	-	-	87.3	-	88.9	-	87	-	
Sulfide, Neutral Extraction	mg/kg	-	ND (3.6)	-	-	ND (3.7)	-	-	ND (3.6)	-	ND (3.6)	-	ND (3.7)	-	
pH	su	-	6.79	6.43	-	6.13	-	-	5.7	5.16	5.28	6.08	5.45	5.2	
All results in mg/kg unless otherwise noted.															
mg/kg	milligrams per kilogram														
J	Estimated Value														
NS	Not Sampled														
ND	Not Detected														
NA	Not Analyzed														
( )	Method Detection Limit														
B	Compound Found in Blank														
**	Health based standard defaults to soil saturation limit														
<sup>b</sup>	Result is from 2nd run														
<sup>a</sup>	Result is from 2nd run														
	Exceeds NJDEP Non-Residential Soil Remediation Standard														



Client Sample ID:		NJ Non-Residential Direct Contact Soil	DPG1-SS-1	DPG1-SS-2	DPG1-SS-3	DPG1-SS-4
Lab Sample ID:			JB99834-13	JB99834-14	JB99834-15	JB99834-16
Date Sampled:			7/22/2015	7/22/2015	7/22/2015	7/22/2015
Matrix:			Soil	Soil	Soil	Soil
Depth:			1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft	1.5-2.0 ft
GC Semi-volatiles (NJDEP EPH)						
EPH (C9-C28)	mg/kg	-	63.3	36.5	24	ND (4.4)
EPH (>C28-C40)	mg/kg	-	60	65.5	37.7	ND (4.4)
Total EPH (C9-C40)	mg/kg	54000	123	102	61.7	ND (4.4)
General Chemistry						
Solids, Percent	%	-	95.4	92.4	92.8	94.5

mg/kg	milligrams per kilogram
J	Estimated Value
NS	Not Sampled
ND	Not Detected
NA	Not Analyzed
( )	Method Detection Limit
B	Compound Found in Blank
**	Health based standard defaults to soil saturation limit
b	Result is from 2nd run
a	Result is from 2nd run

Exceeds NJDEP Non-Residential Soil Remediation Standard

Table 4-1

Hess Corporation - Former Port Reading Complex (HC-PR) - 750 Cliff Road, Port Reading, New Jersey Summary of Soil Analytical Results at AOC 117 - Diesel Powered Emergency Generator - Millwright's Shop

Client Sample ID:		NJ Non-Residential Direct Contact Soil	DPG2-SS-1	DPG2-SS-2	DPG2-SS-3	DPG2-SS-4
Lab Sample ID:			JB98902-1	JB98902-2	JB98902-3	JB98902-4
Date Sampled:			7/10/2015	7/10/2015	7/10/2015	7/10/2015
Matrix:			Soil	Soil	Soil	Soil
GC Semi-volatiles (NJDEP EPH)						
EPH (C9-C28)	mg/kg	-	38.9	529	325	ND (4.7)
EPH (>C28-C40)	mg/kg	-	35.7	346	244	ND (4.7)
Total EPH (C9-C40)	mg/kg	54000	74.6	876	568	ND (4.7)
General Chemistry						
Solids, Percent	%	-	88.8	91.5	89.3	87.7
All results in mg/kg unless otherwise noted.						
mg/kg	milligrams per kilogram					
J	Estimated Value					
NS	Not Sampled					
ND	Not Detected					
NA	Not Analyzed					
( )	Method Detection Limit					
B	Compound Found in Blank					
**	Health based standard defaults to soil saturation limit					
b	Result is from 2nd run					
a	Result is from 2nd run					
	Exceeds NJDEP Non-Residential Soil Remediation Standard					

# **ATTACHMET 5**

## **GROUNDWATER FIGURES & TABLES**

**Figure 5.1 – 2019 Groundwater Contour Map – Shallow**

**Figure 5.2 – 2019 Groundwater Contour Map – Intermediate**

**Figure 5.3 – 2019 Groundwater Contour Map – Deep**

**Figure 5.4 – 2019 AOC 3 – No. 1 Landfarm Groundwater Analytical Results**

**Figure 5.5 – 2019 AOC 5 – Aeration Basins Groundwater Analytical Results**

**Figure 5.6 – 2019 AOC 10 – Truck Loading Rack Groundwater Analytical Results (VOCs)**

**Figure 5.7 – 2019 AOC 10 – Truck Loading Rack Groundwater Analytical Results (SVOCs)**

**Figure 5.8 – 2019 AOC 10 – Truck Loading Rack Groundwater Analytical Results (Metals)**

**Figure 5.9 – 2019 AOC 11a – Administration Building Groundwater Analytical Results (VOCs)**

**Figure 5.10 – 2019 AOC 11a – Administration Building Groundwater Analytical Results (SVOCs)**

**Figure 5.11 – 2019 AOC 11a – Administration Building Groundwater Analytical Results (Metals)**

**Figure 5.12 – 2019 AOC 12 – Detention Basin & Smith Creek Groundwater Analytical Results**

**Figure 5.13 – 2019 AOC 14a – First Tankfield Groundwater Analytical Results**

**Figure 5.14 – 2019 AOC 16b – Marine Loading Dock Groundwater Analytical Results**

**Figure 5.15 – 2019 AOC 19 – QC Laboratory Groundwater Analytical Results**

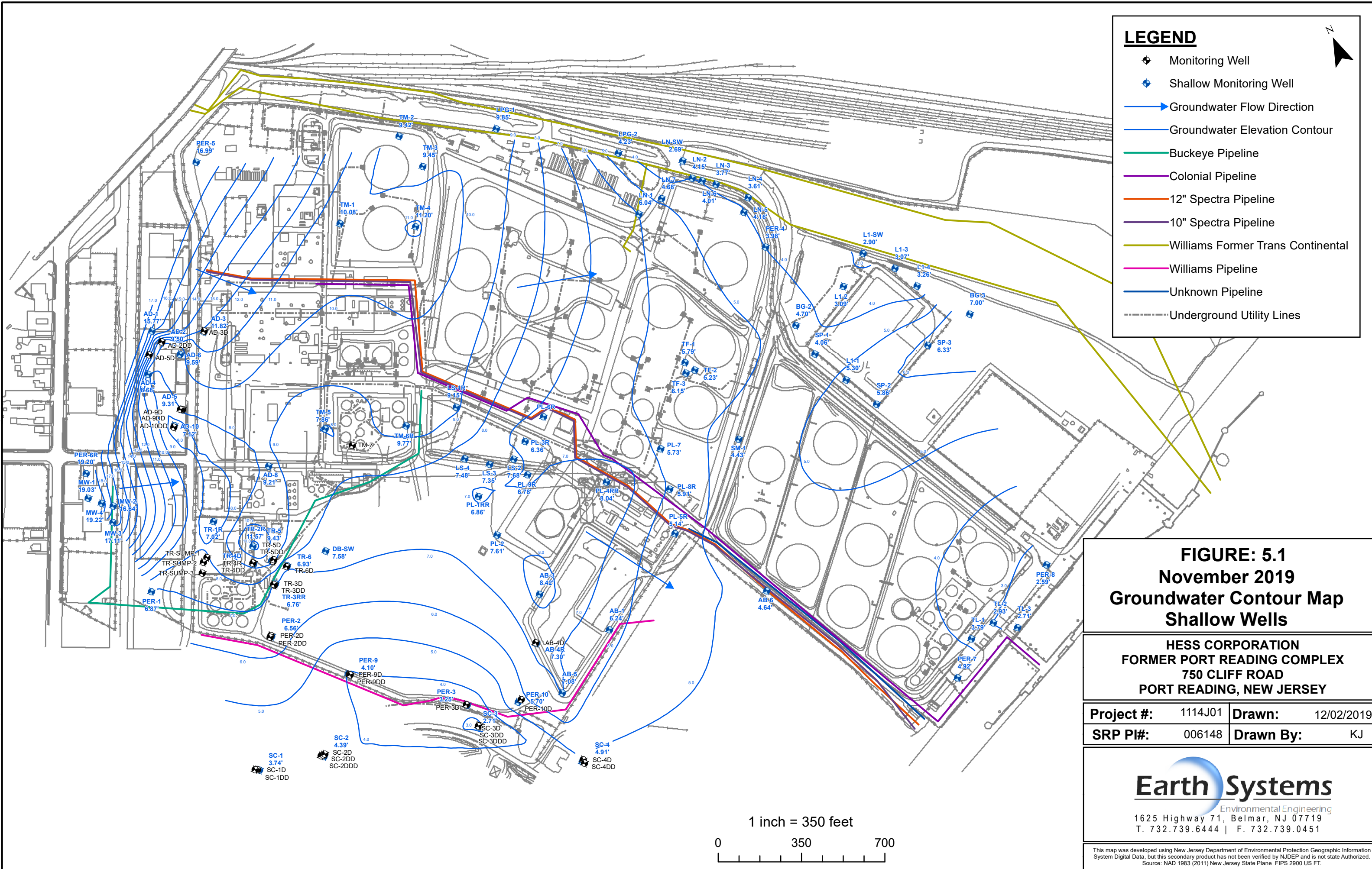
**Figure 5.16 – 2019 TRMU Groundwater Analytical Results**

**Figure 5.17 – 2019 SRMU Groundwater Analytical Results**

**Figure 5.18 – 2019 Offsite PSEG Groundwater Analytical Results**

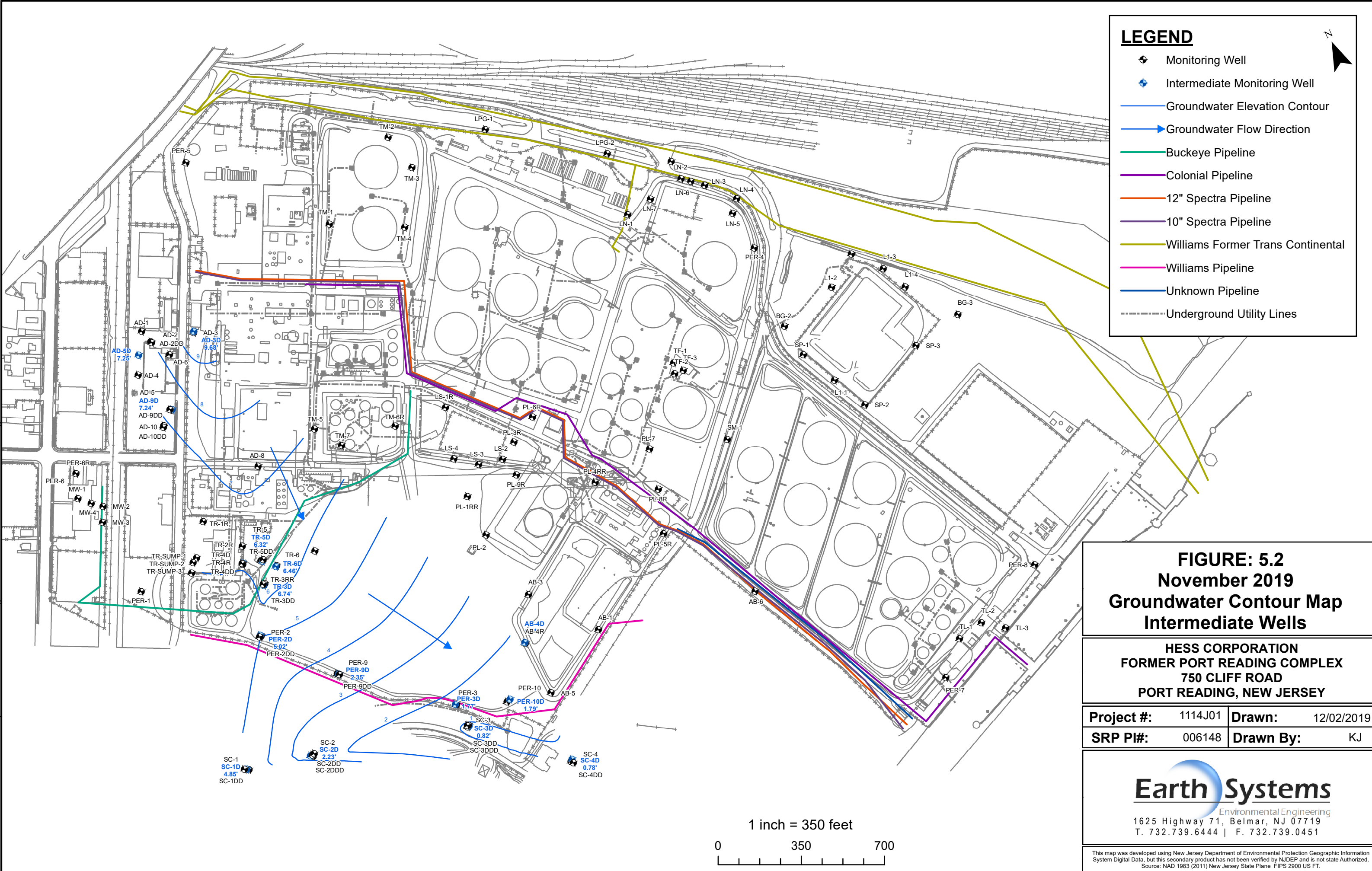
**Figure 5.19 through Figure 5.38 – Groundwater Concentrations Isopleth Figures**

**Table 5.1 – 2019 Annual Groundwater Analytical Results**

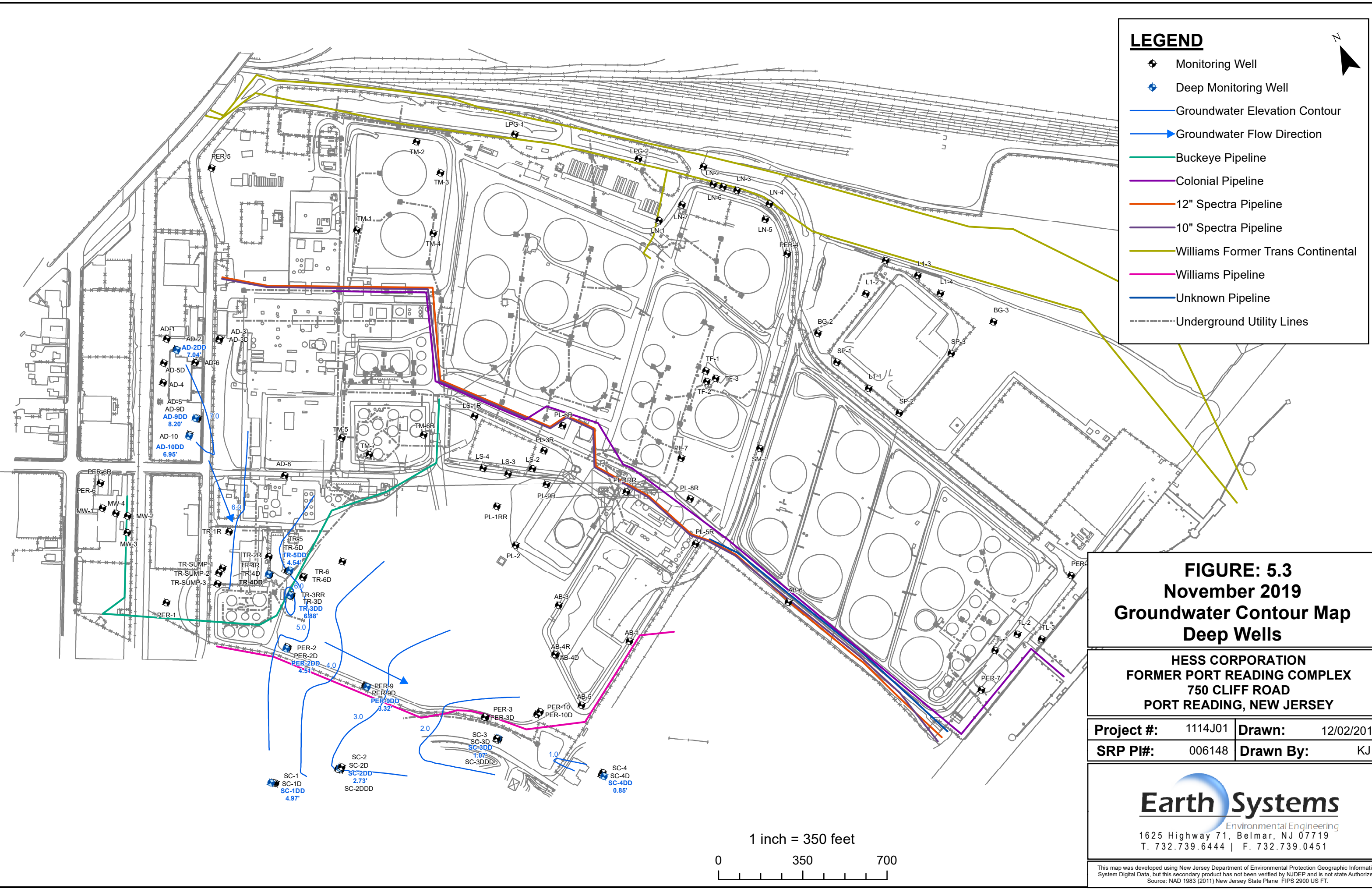


This map was developed using New Jersey Department of Environmental Protection Geographic Information System Digital Data, but this secondary product has not been verified by NJDEP and is not state Authorized. Source: NAD 1983 (2011) New Jersey State Plane FIPS 2900 US FT.









**LEGEND**

- Monitoring Well
- Deep Monitoring Well
- Groundwater Elevation Contour
- Groundwater Flow Direction
- Buckeye Pipeline
- Colonial Pipeline
- 12" Spectra Pipeline
- 10" Spectra Pipeline
- Williams Former Trans Continental
- Williams Pipeline
- Unknown Pipeline
- Underground Utility Lines

**FIGURE: 5.3**  
**November 2019**  
**Groundwater Contour Map**  
**Deep Wells**

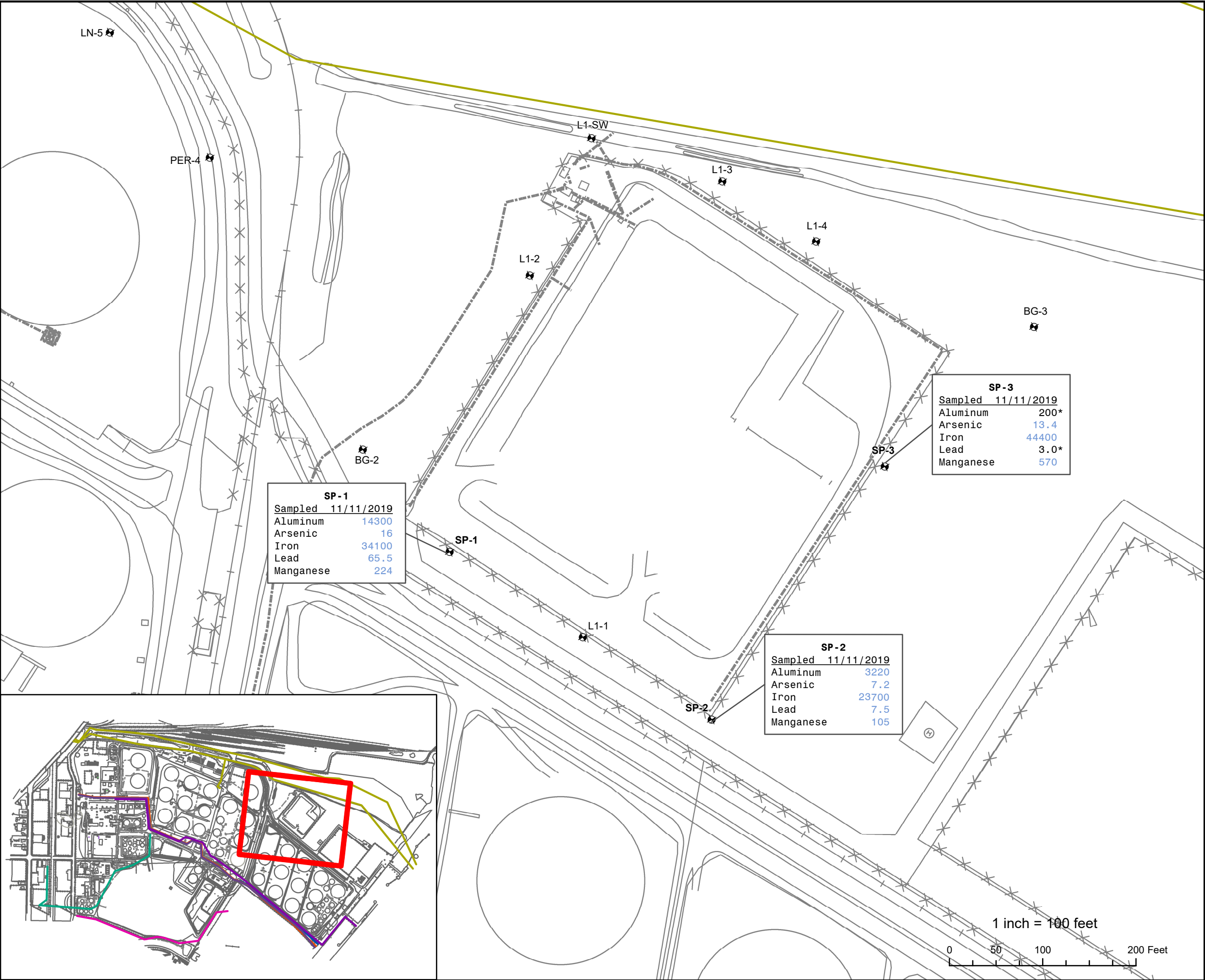
**HESS CORPORATION**  
**FORMER PORT READING COMPLEX**  
**750 CLIFF ROAD**  
**PORT READING, NEW JERSEY**

<b>Project #:</b>	1114J01	<b>Drawn:</b>	12/02/2019
<b>SRP PI#:</b>	006148	<b>Drawn By:</b>	KJ

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Environmental Engineering  
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This map was developed using New Jersey Department of Environmental Protection Geographic Information System Digital Data, but this secondary product has not been verified by NJDEP and is not state Authorized. Source: NAD 1983 (2011) New Jersey State Plane FIPS 2900 US FT.

Document Path: P:\ArcGIS\Hess Projects\1114.J00 - Port Reading Hess\1114.J01 - Sitedata\GIS\Port Reading - 2019 Annual Groundwater Results SP No1 LF Wells.mxd



## LEGEND

- Monitoring Well
- Buckeye Pipeline
- Colonial Pipeline
- 12" Spectra Pipeline
- 10" Spectra Pipeline
- Williams Former Trans Continental
- Williams Pipeline
- Unknown Pipeline
- Underground Utility Lines

## NJ Groundwater Criteria

Aluminum	200
Arsenic	3
Iron	300
Lead	5
Manganese	50

NOTE:  
1. All Results were measured in ug/l  
2. \* Result was found to be less than GWQS  
3. VOC, SVOC, and General Chemistry results all under GWQS.

## ANNUAL GROUNDWATER RESULTS NOVEMBER 2019 AOC 3 - NO. 1 LANDFARM

Hess Former Port Reading Complex  
750 Cliff Road  
Port Reading, New Jersey

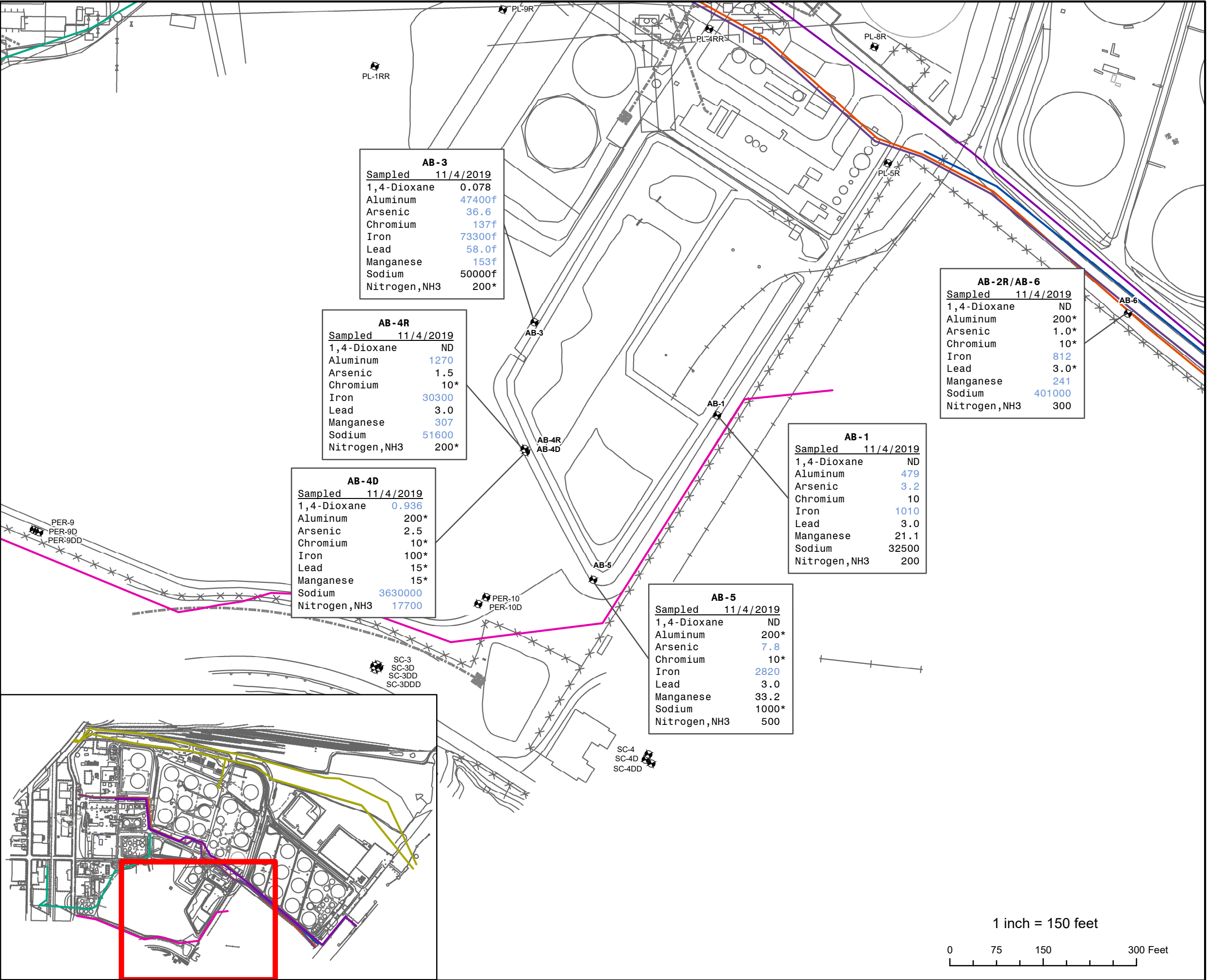
FIGURE: 5.4

Drawn By: KJ Date : 12/5/2019

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**LEGEND**

- Monitoring Well
- Buckeye Pipeline
- Colonial Pipeline
- 12" Spectra Pipeline
- 10" Spectra Pipeline
- Williams Former Trans Continental
- Williams Pipeline
- Unknown Pipeline
- Underground Utility Lines

NJ Groundwater Criteria	
1,4-Dioxane	0.4
Aluminum	200
Arsenic	3
Chromium	70
Iron	300
Lead	5
Manganese	50
Sodium	50000
Nitrogen, Ammonia	3000

NOTE:  
- \*Value detected is outside in house QC limits, bais low.  
- f This compound in BS is outside in house QC limits bias high.  
- All results measured in ug/l

**ANNUAL GROUNDWATER RESULTS  
NOVEMBER 2019  
AERATION BASINS**

Hess Former Port Reading Complex  
750 Cliff Road  
Port Reading, New Jersey

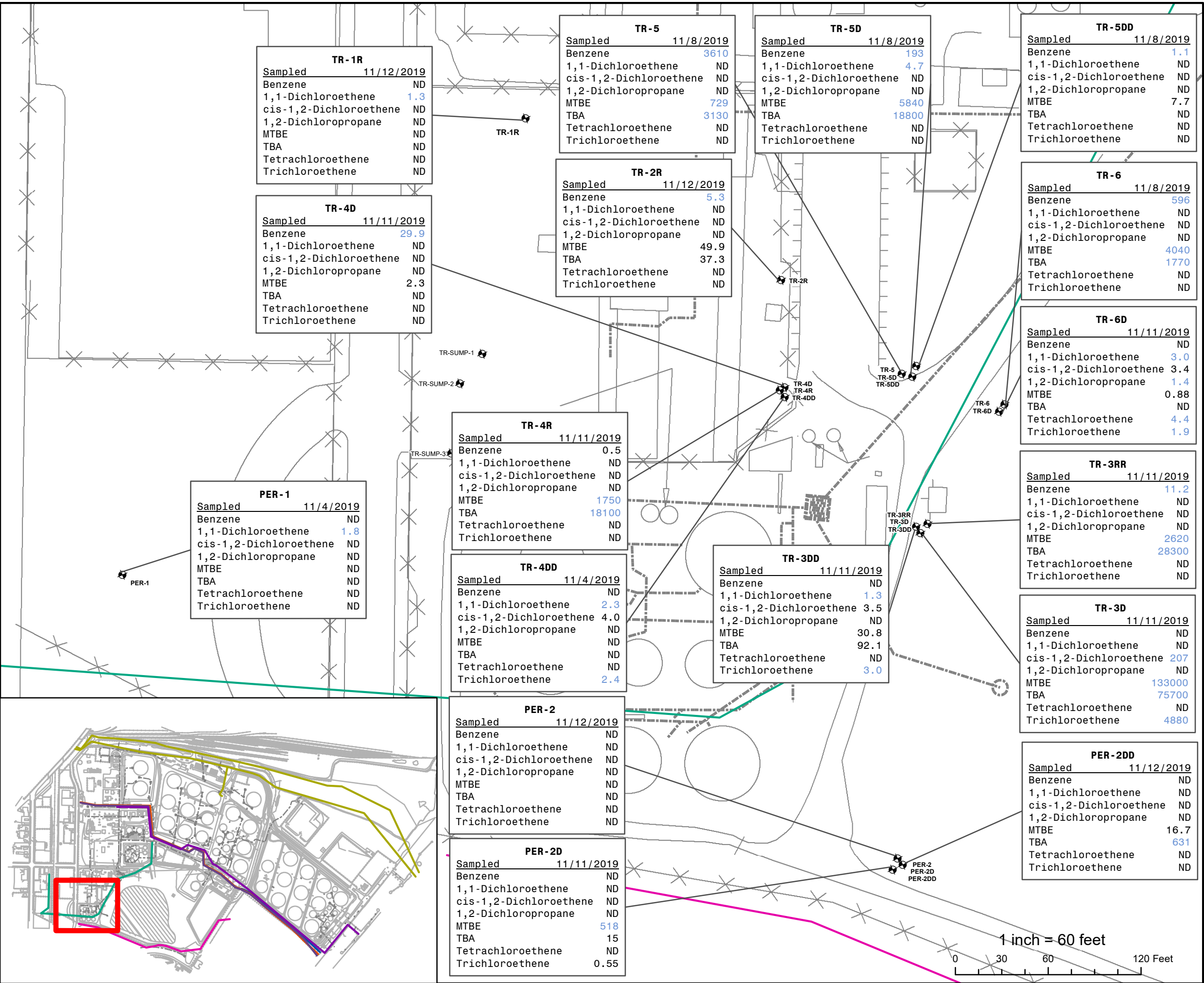
**FIGURE: 5.5**

Drawn By: KJ      Date : 12/5/2019



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Environmental Engineering

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LEGEND

- Monitoring Well
- Buckeye Pipeline
- Colonial Pipeline
- 12" Spectra Pipeline
- 10" Spectra Pipeline
- Williams Former Trans Continental
- Williams Pipeline
- Unknown Pipeline
- Underground Utility Lines

NJ Groundwater Criteria	
Benzene	1
1,1-Dichloroethene	1
cis-1,2-Dichloroethene	70
1,2-Dichloropropane	1
Methyl Tert Butyl Ether	70
Tert Butyl Alcohol	100
Tetrachloroethene	1
Trichloroethene	1

NOTE:  
\* Results were measured in ug/l

ANNUAL GROUNDWATER RESULTS  
NOVEMBER 2019  
AOC 10 - TRUCK LOADING RACK

Hess Former Port Reading Complex  
750 Cliff Road  
Port Reading, New Jersey

FIGURE: 5.6

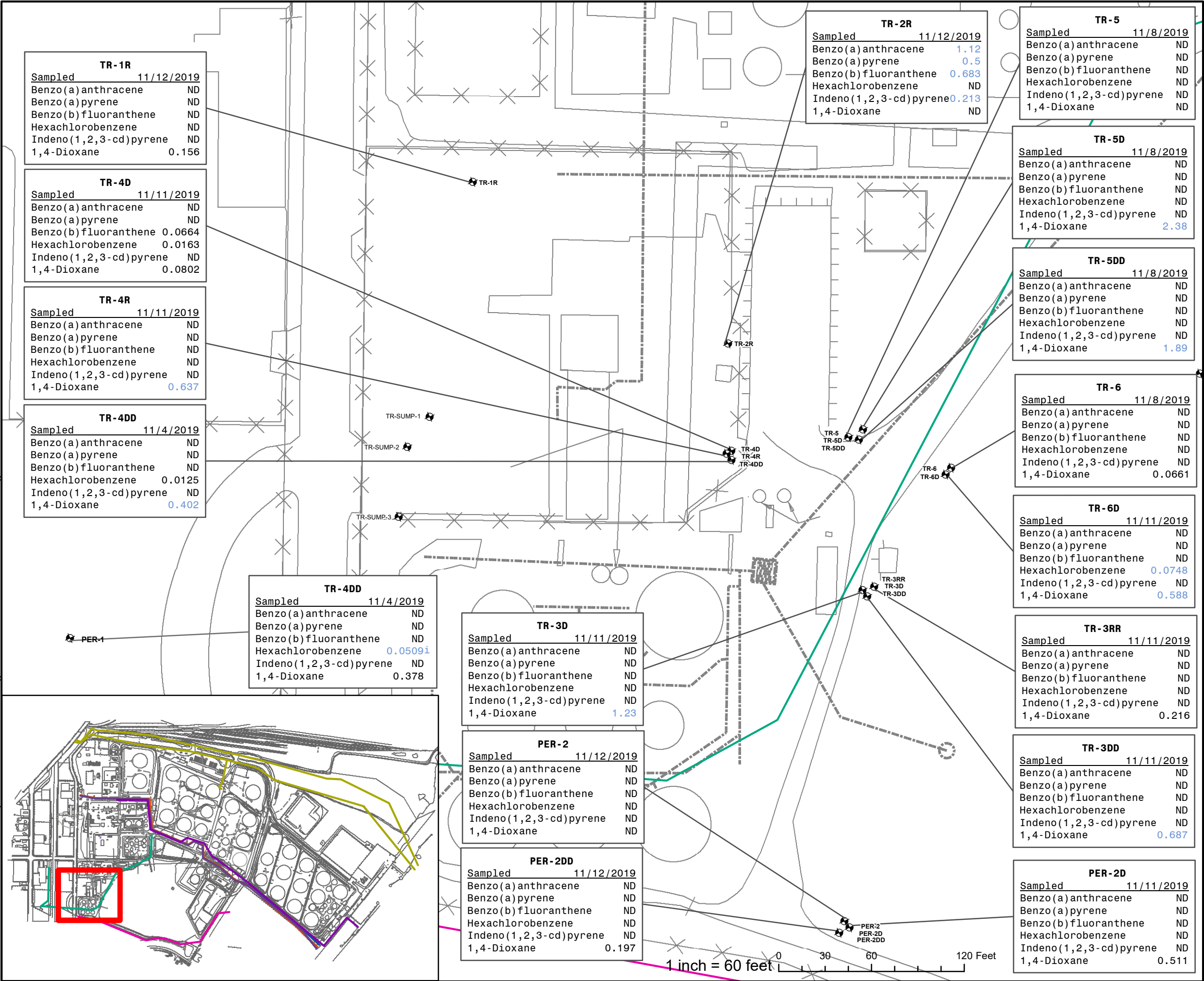
Drawn By: KJ      Date : 12/9/2019



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**ANNUAL GROUNDWATER RESULTS**  
**NOVEMBER 2019 - SVOC**  
**AOC 10 - TRUCK LOADING RACK**

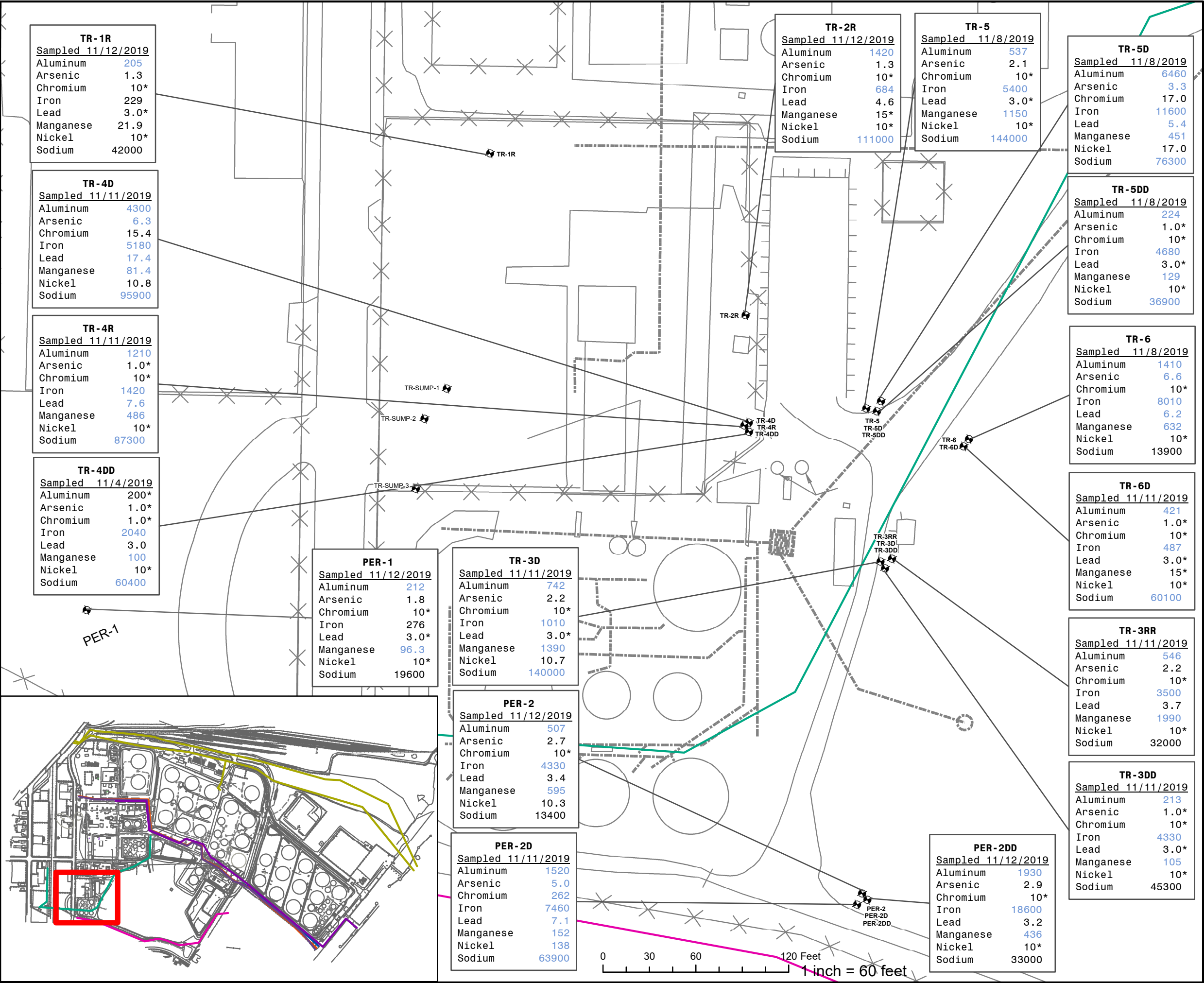
Hess Former Port Reading Complex  
750 Cliff Road  
Port Reading, New Jersey

**FIGURE: 5.7**

Drawn By: KJ | Date: 12/9/2019

**Earth Systems**  
Environmental Engineering  
1625 Highway 71, Belmar, NJ 07719  
T. 732.739.6444 | F. 732.739.0451





## LEGEND

- Monitoring Well
- Buckeye Pipeline
- Colonial Pipeline
- 12" Spectra Pipeline
- 10" Spectra Pipeline
- Williams Former Trans Continental
- Williams Pipeline
- Unknown Pipeline
- Underground Utility Lines

NJ Groundwater Criteria	
Aluminum	200
Arsenic	3
Chromium	70
Iron	300
Lead	5
Manganese	50
Nickel	100
Sodium	50000

NOTE:  
\* Results were measured in ug/l

### ANNUAL GROUNDWATER RESULTS NOVEMBER 2019 - METALS AOC 10 - TRUCK LOADING RACK

Hess Former Port Reading Complex  
750 Cliff Road  
Port Reading, New Jersey

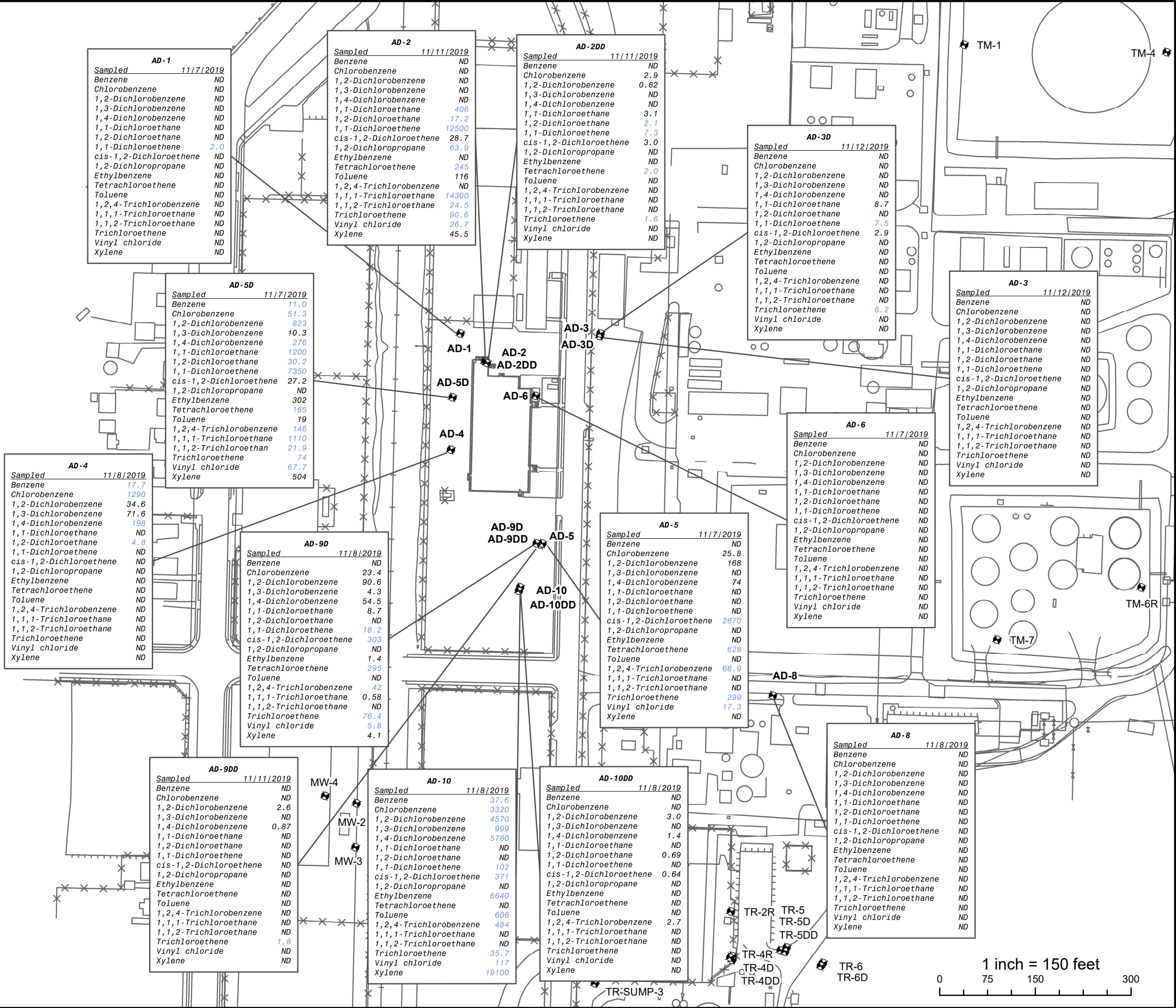
**FIGURE: 5.8**

Drawn By: KJ      Date: 12/9/2019

# Earth Systems

Environmental Engineering

1625 Highway 71, Belmar, NJ 07719  
T. 732.739.6444 | F. 732.739.0451



## LEGEND

- Monitoring Well
- Buckeye Pipeline
- Colonial Pipeline
- 12" Spectra Pipeline
- 10" Spectra Pipeline
- Williams Former Trans Continental
- Williams Pipeline
- Unknown Pipeline
- Underground Utility Lines

NJ Groundwater Criteria	
Benzene	1
Chlorobenzene	50
1,2-Dichlorobenzene	600
1,3-Dichlorobenzene	600
1,4-Dichlorobenzene	75
1,1-Dichloroethane	50
1,2-Dichloroethane	2
1,1-Dichloroethene	1
cis-1,2-Dichloroethene	70
1,2-Dichloropropane	1
Ethylbenzene	700
Tetrachloroethene	1
Toluene	600
1,2,4-Trichlorobenzene	9
1,1,1-Trichloroethane	30
1,1,2-Trichloroethane	3
Trichloroethene	1
Vinyl chloride	1
Xylene (total)	1000

NOTE:  
1. All Results were Measured in ug/l  
2. \* Result was found to be less than the GWQS  
3. q Elevated detection limit due to dilution required for matrix interference.

### ANNUAL GROUNDWATER RESULTS NOVEMBER 2019 - VOCs ADMINISTRATION BUILDING

Hess Former Port Reading Complex  
750 Cliff Road  
Port Reading, New Jersey

FIGURE: 5.9

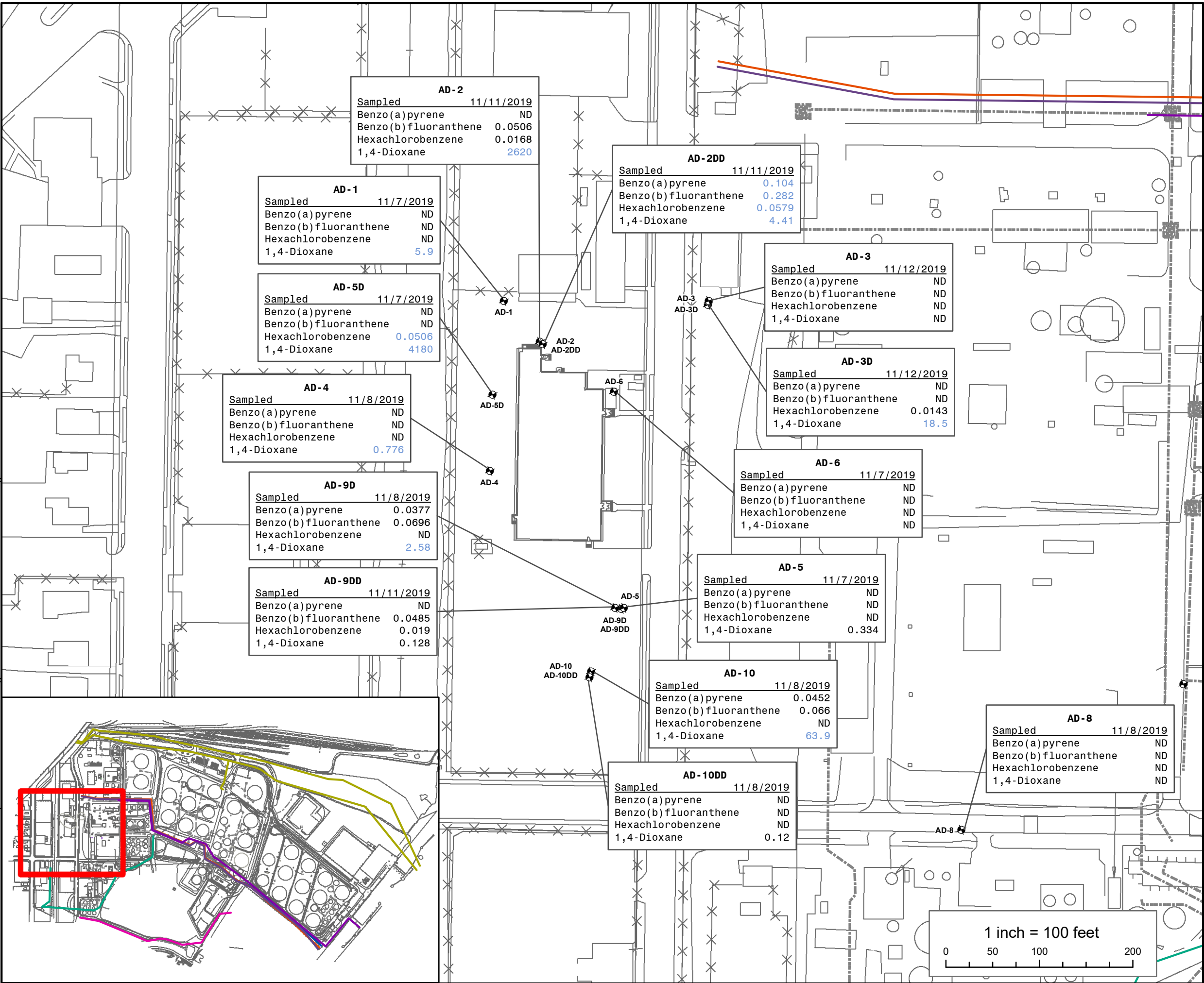
Drawn By:	KJ	Date :	12/9/2019
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# Earth Systems

Environmental Engineering

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## LEGEND

- Monitoring Well
- Buckeye Pipeline
- Colonial Pipeline
- 12" Spectra Pipeline
- 10" Spectra Pipeline
- Williams Former Trans Continental
- Williams Pipeline
- Unknown Pipeline
- Underground Utility Lines

### ANNUAL GROUNDWATER RESULTS NOVEMBER 2019 - SVOCs ADMINISTRATION BUILDING

Hess Former Port Reading Complex  
750 Cliff Road  
Port Reading, New Jersey

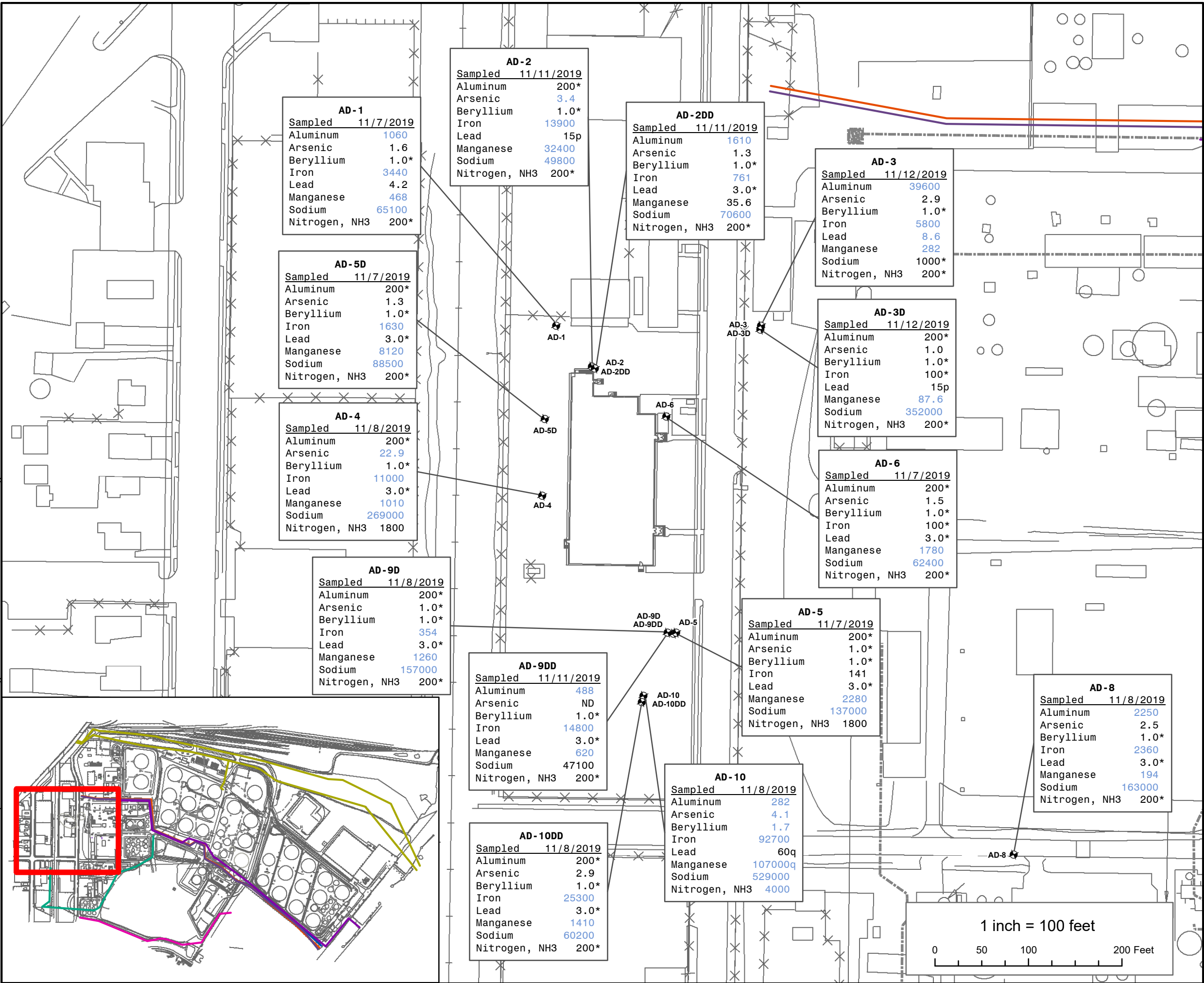
**FIGURE: 5.10**

Drawn By: KJ      Date: 12/9/2019

# Earth Systems

Environmental Engineering

1625 Highway 71, Belmar, NJ 07719  
T. 732.739.6444 | F. 732.739.0451



**LEGEND**

- Monitoring Well
- Buckeye Pipeline
- Colonial Pipeline
- 12" Spectra Pipeline
- 10" Spectra Pipeline
- Williams Former Trans Continental
- Williams Pipeline
- Unknown Pipeline
- Underground Utility Lines

**NJ Groundwater Criteria**

Aluminum	200
Arsenic	3
Beryllium	1
Iron	300
Lead	5
Manganese	50
Sodium	50000
Nitrogen, Ammonia	3000

- NOTE:
1. All results Measured in ug/l
  - 2.\* Result was found to be less than the GWQS
  3. p Elevated detection limit due to dilution required for high interfering element.
  4. q Elevated detection limit due to dilution required for matrix interference.

**ANNUAL GROUNDWATER RESULTS  
NOVEMBER 2019 - METALS  
ADMINISTRATION BUILDING**

Hess Former Port Reading Complex  
750 Cliff Road  
Port Reading, New Jersey

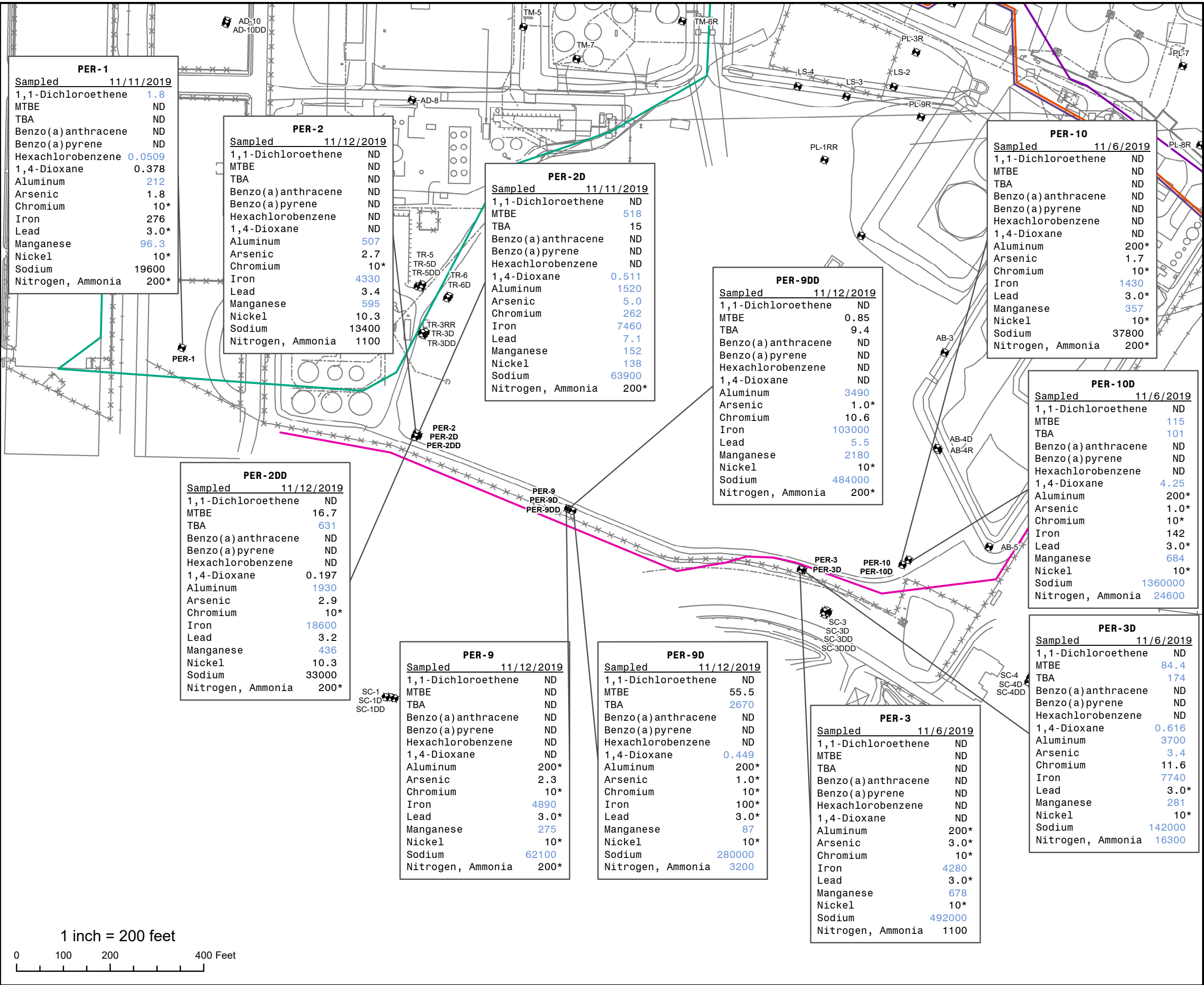
**FIGURE: 5.11**

Drawn By: KJ Date : 12/9/2019

**Earth Systems**  
Environmental Engineering  
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LEGEND

- Monitoring Well
- Buckeye Pipeline
- Colonial Pipeline
- 12" Spectra Pipeline
- 10" Spectra Pipeline
- Williams Former Trans Continental
- Williams Pipeline
- Unknown Pipeline
- Underground Utility Lines

NJ Groundwater Criteria	
1,1-Dichloroethene	1
Methyl Tert Butyl Ether	70
Tert Butyl Alcohol	100
Benzo(a)anthracene	0.1
Benzo(a)pyrene	0.1
Hexachlorobenzene	0.02
1,4-Dioxane	0.4
Aluminum	200
Arsenic	3
Chromium	70
Iron	300
Lead	5
Manganese	50
Nickel	100
Sodium	50000
Nitrogen, Ammonia	3000

NOTE:  
1. All results were measured in ug/l  
2. \* Result was found to be less than the GWQS

ANNUAL GROUNDWATER RESULTS  
NOVEMBER 2019  
DETENTION BASIN/SMITH CREEK

Hess Former Port Reading Complex  
750 Cliff Road  
Port Reading, New Jersey

FIGURE: 5.12

Drawn By: KJ Date : 12/11/2019

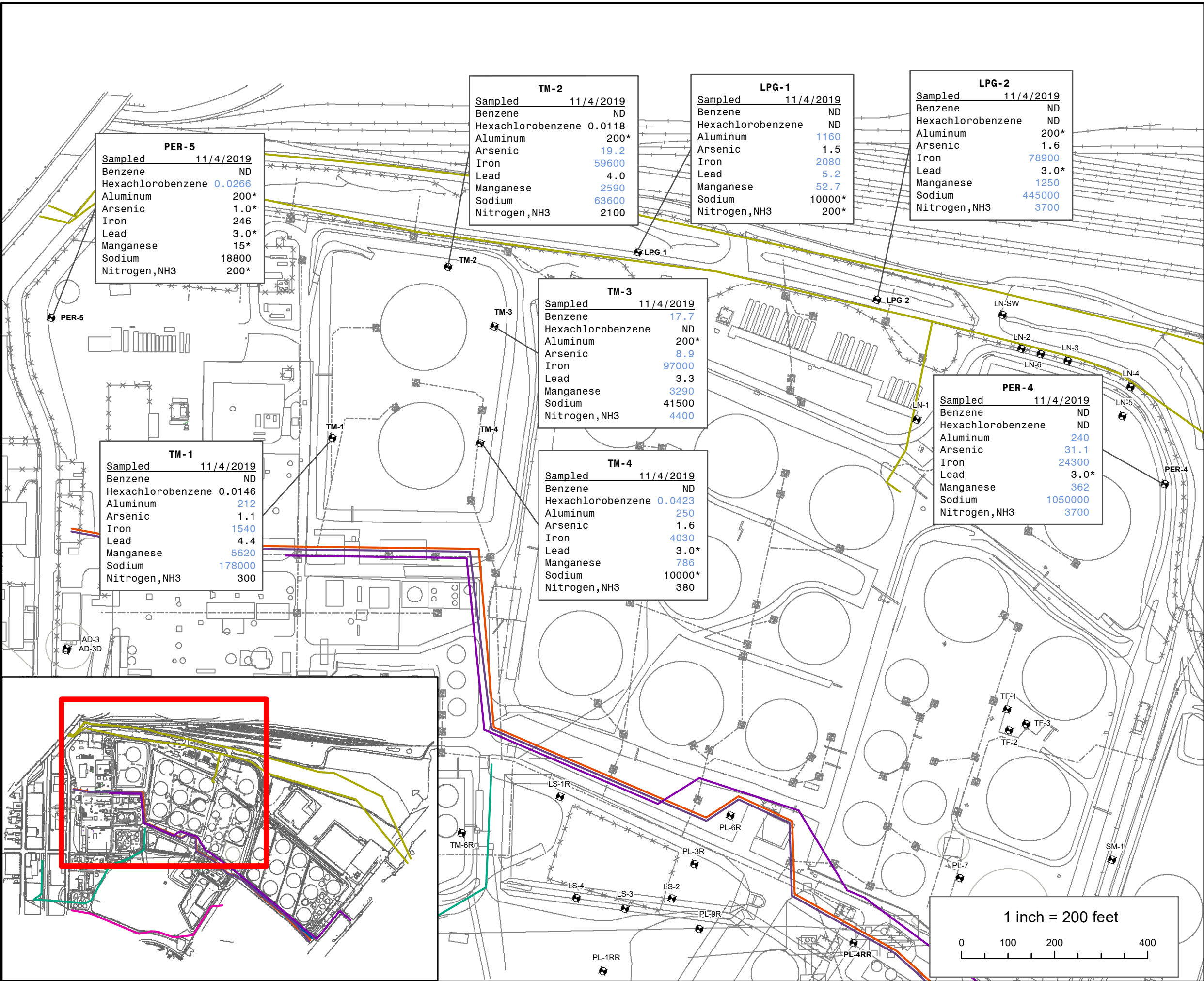


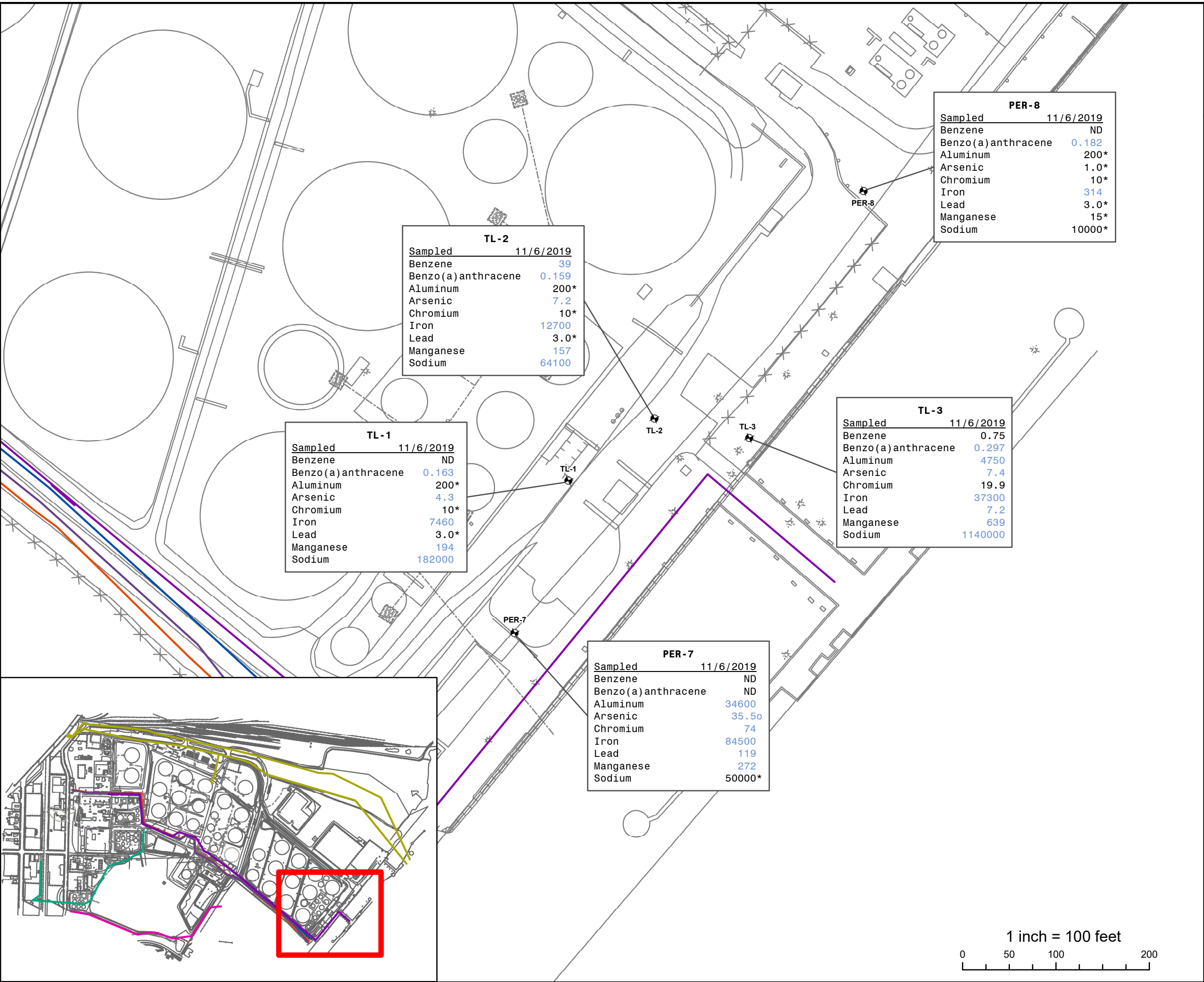
Environmental Engineering

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**LEGEND**

- Monitoring Well
- Buckeye Pipeline
- Colonial Pipeline
- 12" Spectra Pipeline
- 10" Spectra Pipeline
- Williams Former Trans Continental
- Williams Pipeline
- Unknown Pipeline
- Underground Utility Lines

**NJ Groundwater Criteria**

Benzene	1
Benzo(a)anthracene	0.1
Aluminum	200
Arsenic	3
Chromium	70
Iron	300
Lead	5
Manganese	50
Sodium	50000

NOTE:  
1. All Results were measured in ug/l  
2. \* Result was found to be less than the GQWS  
3. o Elevated sample detection limit due to difficult sample matrix.

**ANNUAL GROUNDWATER RESULTS  
NOVEMBER 2019  
AOC 16b MARINE LOADING AREA**

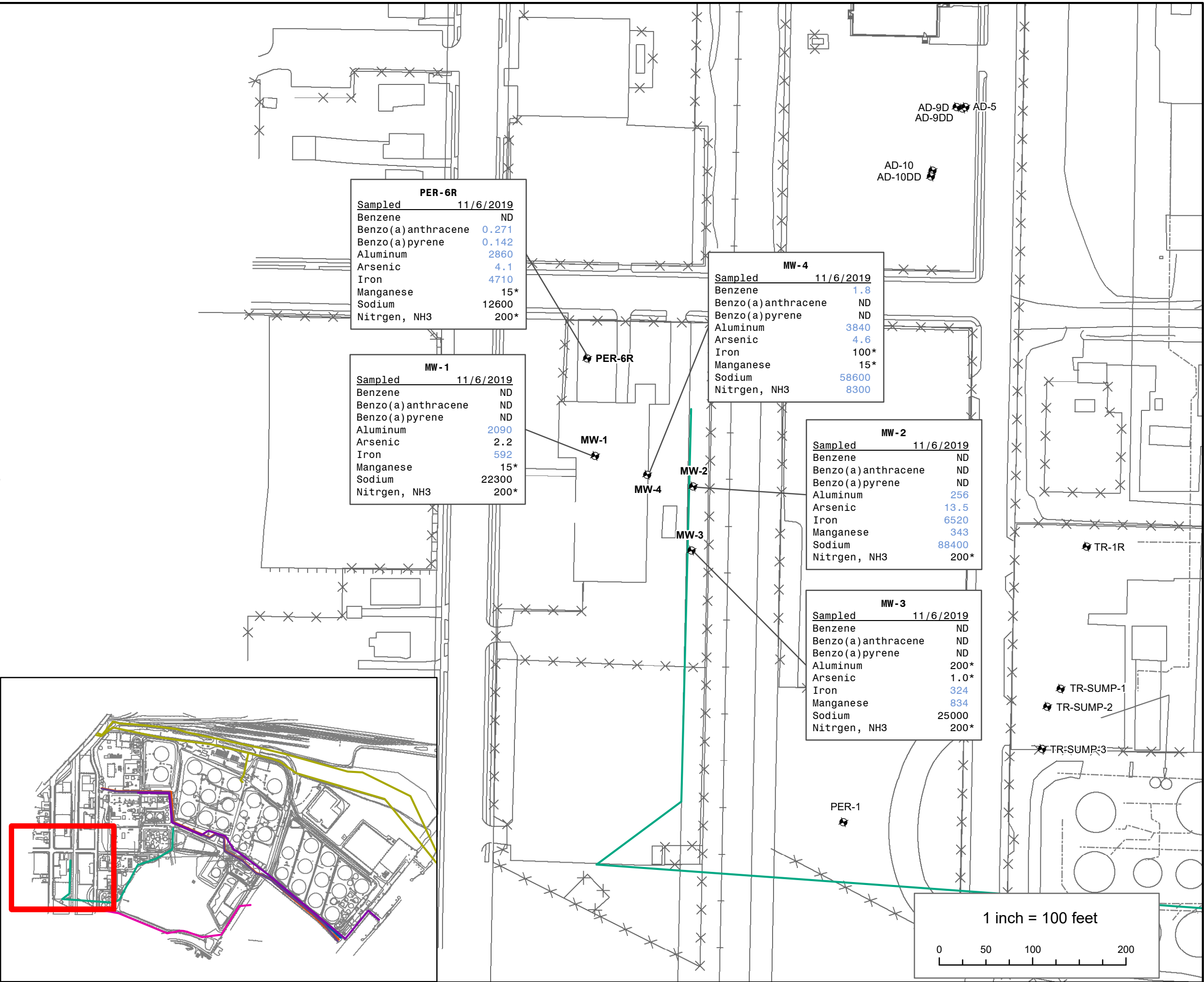
Hess Former Port Reading Complex  
750 Cliff Road  
Port Reading, New Jersey

**FIGURE: 5.14**

Drawn By: KJ      Date : 12/13/2019

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**LEGEND**

- Monitoring Well
- Buckeye Pipeline
- Colonial Pipeline
- 12" Spectra Pipeline
- 10" Spectra Pipeline
- Williams Former Trans Continental
- Williams Pipeline
- Unknown Pipeline
- Underground Utility Lines

NJ Groundwater Criteria	
Benzene	1
Benzo(a)anthracene	0.1
Benzo(a)pyrene	0.1
Aluminum	200
Arsenic	3
Iron	300
Manganese	50
Sodium	50000
Nitrogen, Ammonia	3000

NOTE:  
1. All results were measured in ug/l  
2.\* Result was found to be less than the GQWS

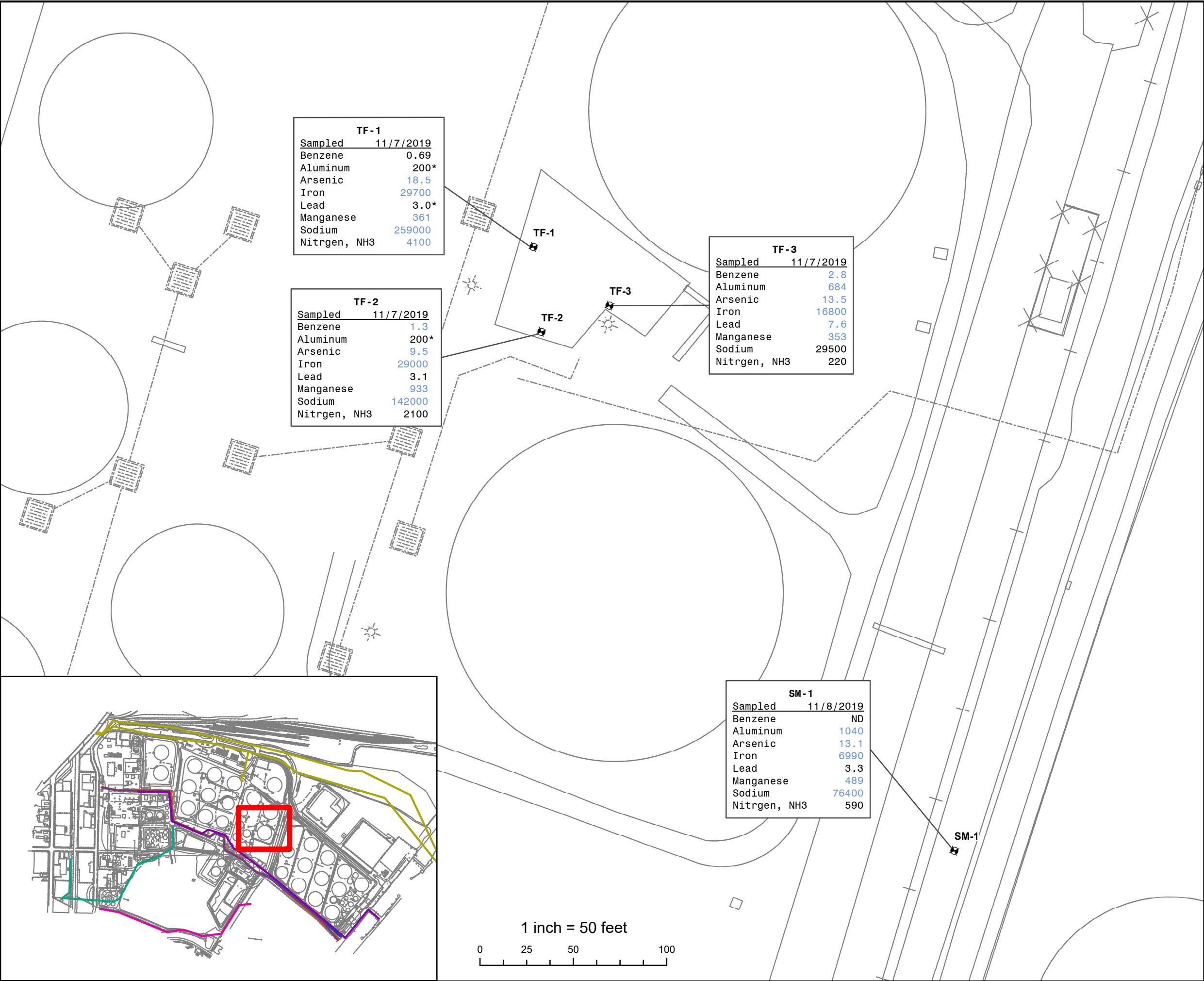
**ANNUAL GROUNDWATER RESULTS**  
**NOVEMBER 2019**  
**QC LAB**

Hess Former Port Reading Complex  
750 Cliff Road  
Port Reading, New Jersey

**FIGURE: 5.15**

Drawn By: KJ | Date : 12/13/2019

**Earth Systems**  
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**LEGEND**

- Monitoring Well
- Buckeye Pipeline
- Colonial Pipeline
- 12" Spectra Pipeline
- 10" Spectra Pipeline
- Williams Former Trans Continental
- Williams Pipeline
- Unknown Pipeline
- Underground Utility Lines

NJ Groundwater Criteria	
Benzene	1
Aluminum	200
Arsenic	3
Iron	300
Lead	5
Manganese	50
Sodium	50000
Nitrogen, Ammonia	3000

NOTE:  
1. All results were measured in ug/l  
2. \* Result was found to be less than the GQWS

**ANNUAL GROUNDWATER RESULTS  
NOVEMBER 2019  
TRMU**

Hess Former Port Reading Complex  
750 Cliff Road  
Port Reading, New Jersey

**FIGURE: 5.16**

Drawn By: KJ      Date : 12/13/2019

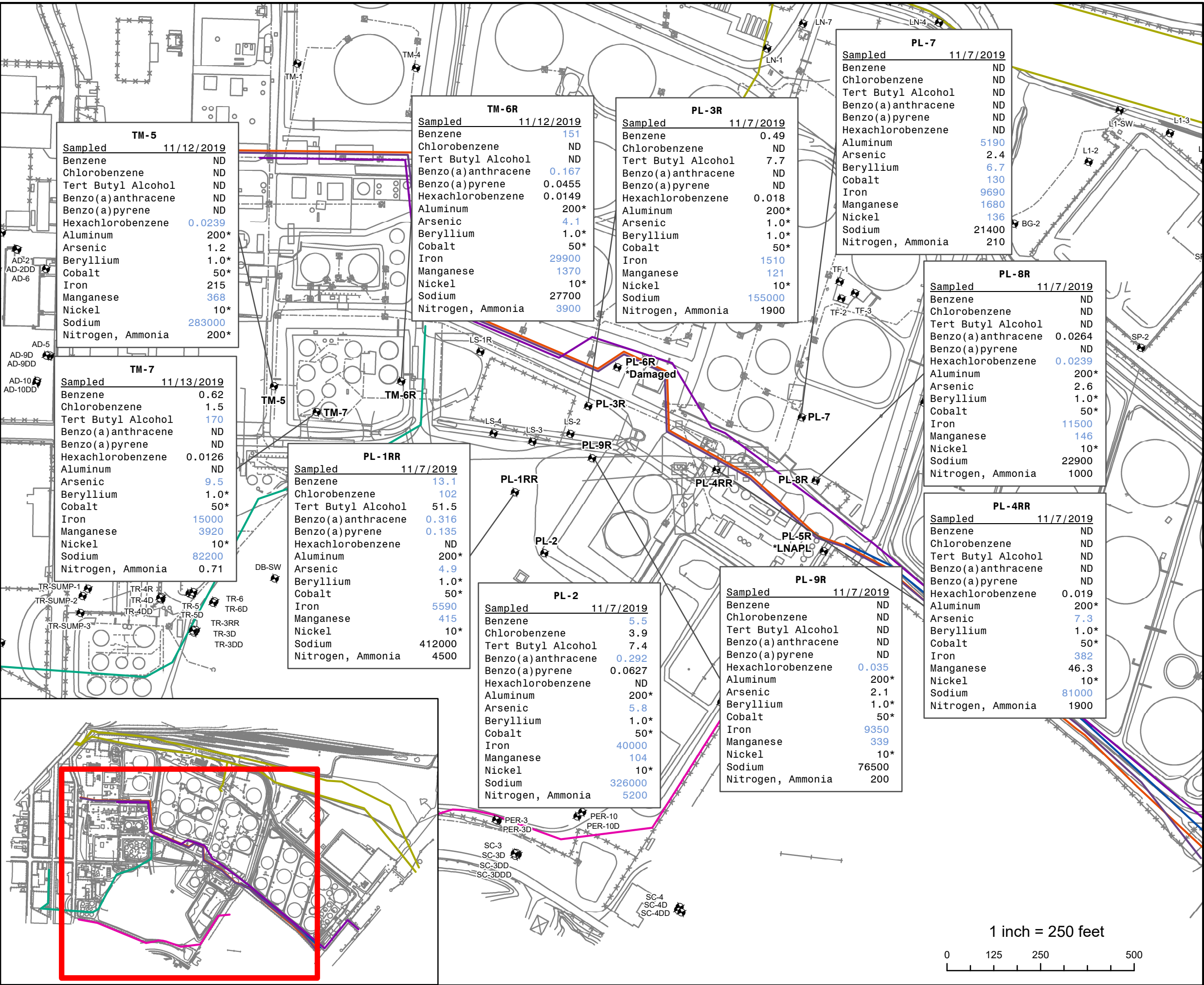


**Earth Systems**  
Environmental Engineering

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## LEGEND

- Monitoring Well
- Buckeye Pipeline
- Colonial Pipeline
- 12" Spectra Pipeline
- 10" Spectra Pipeline
- Williams Former Trans Continental
- Williams Pipeline
- Unknown Pipeline
- Underground Utility Lines

NJ Groundwater Criteria	
Benzene	1
Chlorobenzene	50
Tert Butyl Alcohol	100
Benzo(a)anthracene	0.1
Benzo(a)pyrene	0.1
Hexachlorobenzene	0.02
Aluminum	200
Arsenic	3
Beryllium	1
Cobalt	100
Iron	300
Manganese	50
Nickel	100
Sodium	50000
Nitrogen, Ammonia	3000

NOTE:  
1. All Results were Measured in ug/l  
2. \* Result was found to be less than the GWQS

## ANNUAL GROUNDWATER RESULTS NOVEMBER 2019 SRMU

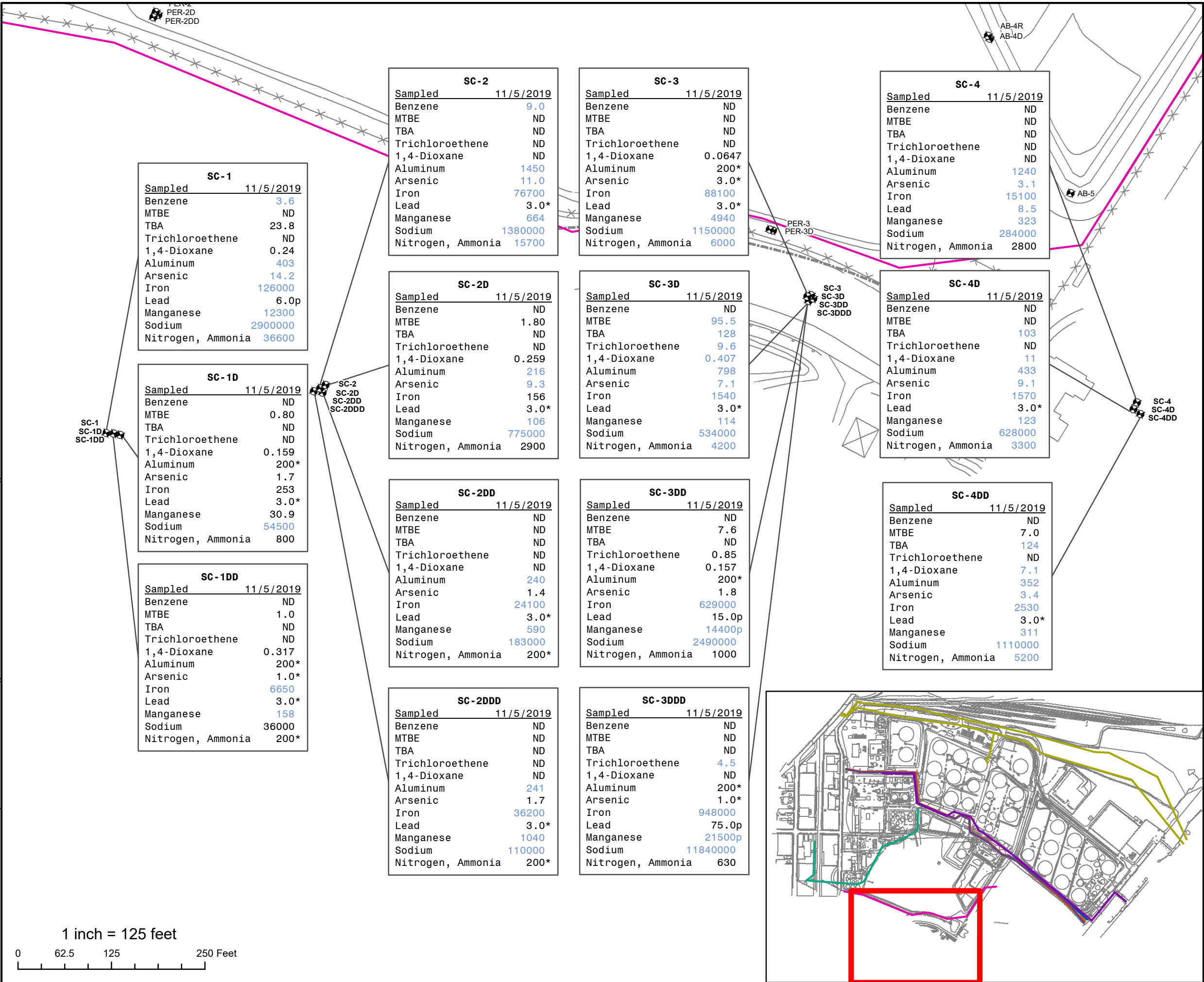
Hess Former Port Reading Complex  
750 Cliff Road  
Port Reading, New Jersey

FIGURE: 5.17

Drawn By: KJ Date: 12/13/2019



Document Path: P:\ArcGIS\Hess Projects\1114J00 - Port Reading Hess\1114J01 - Sitedata\GIS\Port Reading - 2019 Annual Groundwater Results PSEG Wells.mxd



## LEGEND

- Monitoring Well
- Buckeye Pipeline
- Colonial Pipeline
- 12" Spectra Pipeline
- 10" Spectra Pipeline
- Williams Former Trans Continental
- Williams Pipeline
- Unknown Pipeline
- Underground Utility Lines

NJ Groundwater Criteria	
Benzene	1
Methyl Tert Butyl Ether	70
Tert Butyl Alcohol	100
Trichloroethene	1
1,4-Dioxane	0.4
Aluminum	200
Arsenic	3
Iron	300
Lead	5
Manganese	50
Sodium	50000
Nitrogen, Ammonia	3000

NOTE:  
1. All results were measured in ug/l  
2. \* Result was found to be less than the GWQS  
3. p Elevated detection limit due to dilution required for high interfering element.

## ANNUAL GROUNDWATER RESULTS NOVEMBER 2019 OFFSITE PSEG WELLS

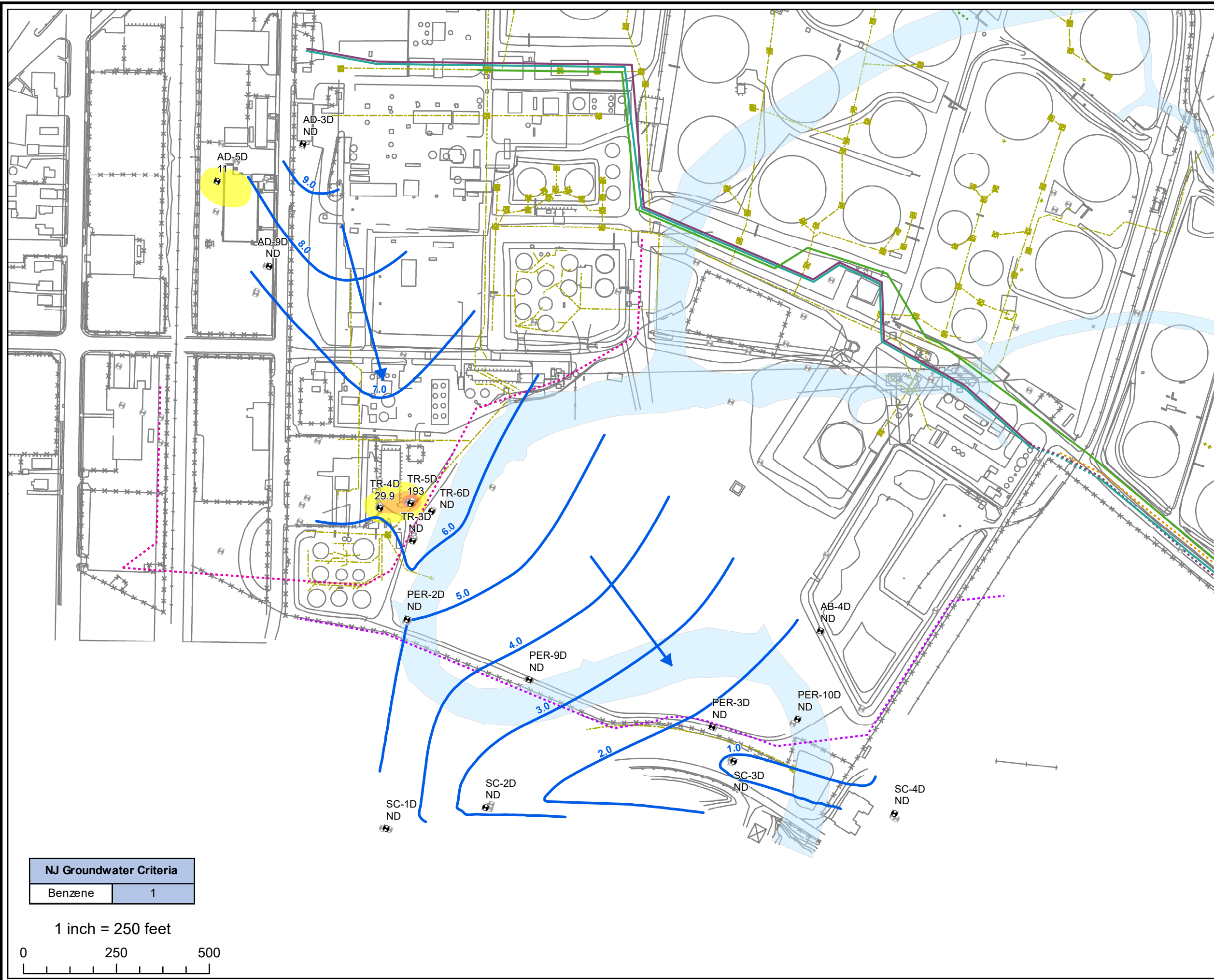
Hess Former Port Reading Complex  
750 Cliff Road  
Port Reading, New Jersey

FIGURE: 5.18

Drawn By: KJ Date: 12/11/2019







**LEGEND**

**Benzene Concentration (ug/l)**

- > 1
- 1-10
- 10-100

- Intermediate Monitoring Well
- Monitoring Well
- Groundwater Elevation Contour
- 10" Spectra Pipeline, Above Ground
- 10" Spectra Pipeline, Underground
- 12" Spectra Pipeline, Above Ground
- 12" Spectra Pipeline, Underground
- Buckeye Pipeline, Above Ground
- Buckeye Pipeline, Underground
- Colonial Pipeline, Above Ground
- Colonial Pipeline, Underground
- Unknown Pipeline, Above Ground
- Unknown Pipeline, Underground
- Williams Pipeline, Above Ground
- Williams Pipeline, Underground
- Former Smith Creek Channel
- Underground Utility Lines/ Storm Water System

Well ID

Benzene Concentration in ug/L

**FIGURE: 5.20**

**November 2019**

**Groundwater Benzene Map**

**Screened Interval: 20-40' BGS**

**HESS CORPORATION**

**FORMER PORT READING COMPLEX**

**750 CLIFF ROAD**

**PORT READING, NEW JERSEY**

<b>Project #:</b>	1114J01	<b>Drawn:</b>	8/26/2020
<b>SRP PI#:</b>	006148	<b>Drawn By:</b>	RC

**Earth Systems**

Environmental Engineering

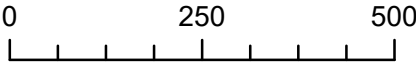
1625 Highway 71, Belmar, NJ 07719

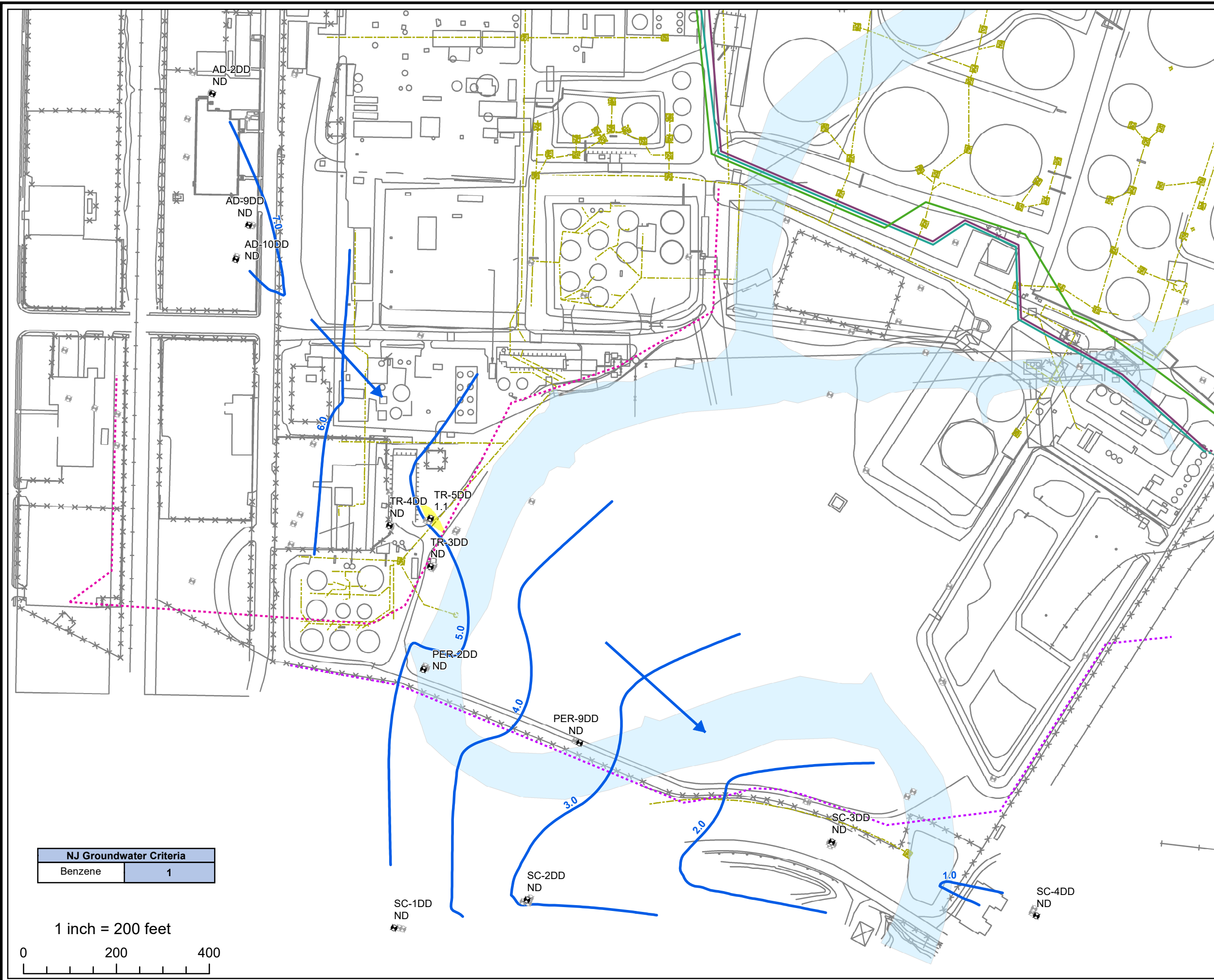
T. 732.739.6444 | F. 732.739.0451

This map was developed using New Jersey Department of Environmental Protection Geographic Information System Digital Data, but this secondary product has not been verified by NJDEP and is not state Authorized. Source: NAD 1983 (2011) New Jersey State Plane FIPS 2900 US FT.

NJ Groundwater Criteria	
Benzene	1

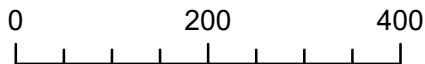
1 inch = 250 feet





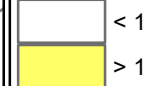
NJ Groundwater Criteria	
Benzene	1

1 inch = 200 feet



## LEGEND

Benzene Concentration (ug/l)



- Deep Monitoring Well
- Monitoring Well
- Groundwater Elevation Contour
- 10" Spectra Pipeline, Above Ground
- 10" Spectra Pipeline, Underground
- 12" Spectra Pipeline, Above Ground
- 12" Spectra Pipeline, Underground
- Buckeye Pipeline, Above Ground
- Buckeye Pipeline, Underground
- Colonial Pipeline, Above Ground
- Colonial Pipeline, Underground
- Unknown Pipeline, Above Ground
- Unknown Pipeline, Underground
- Williams Pipeline, Above Ground
- Williams Pipeline, Underground
- Former Smith Creek Channel
- Underground Utility Lines/ Storm Water System

Benzene Concentration in ug/L

**FIGURE: 5.21**  
**November 2019**  
**Groundwater Benzene Map**  
**Screened Interval: 40-60' BGS**

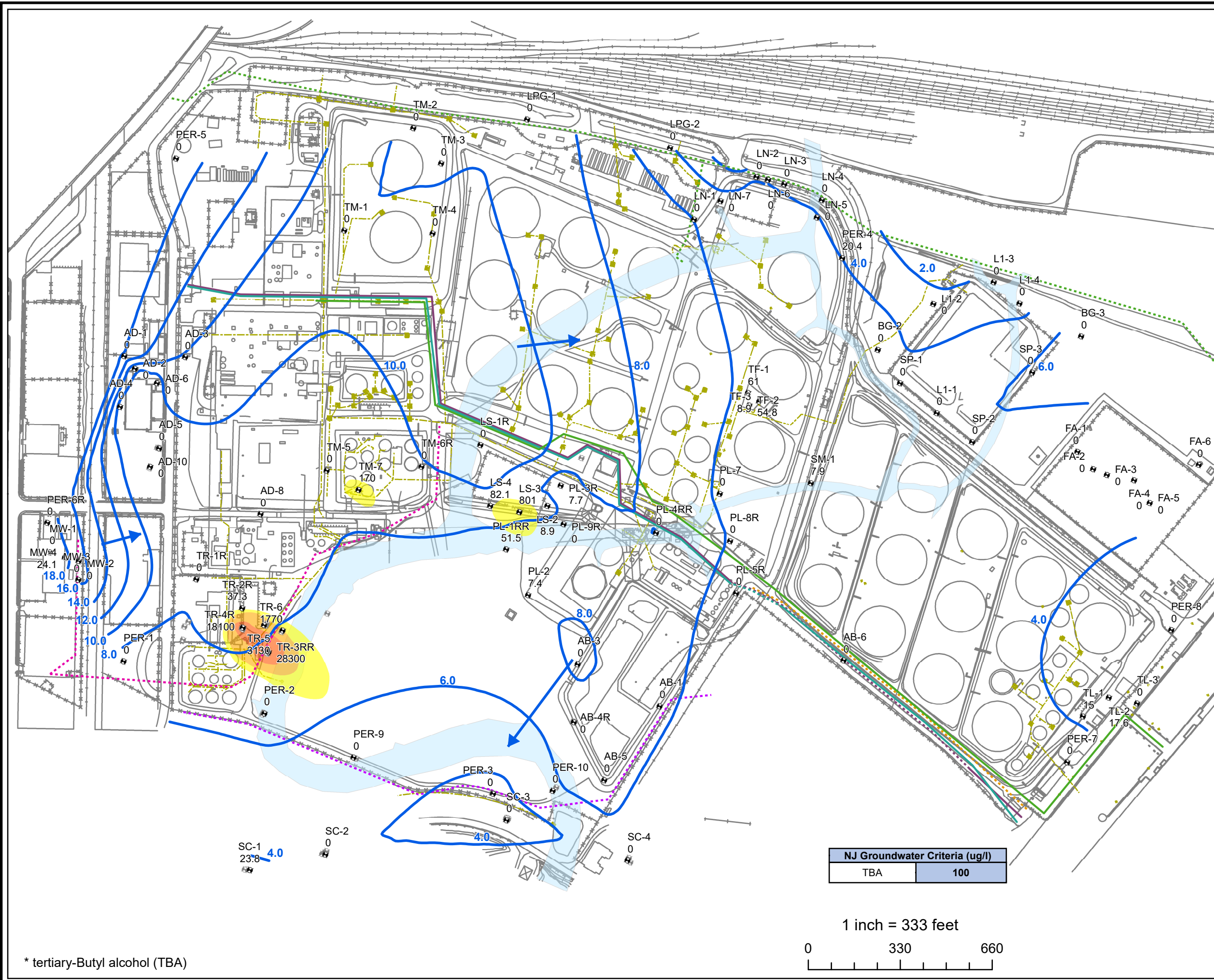
**HESS CORPORATION**  
**FORMER PORT READING COMPLEX**  
**750 CLIFF ROAD**  
**PORT READING, NEW JERSEY**

<b>Project #:</b> 1114J01	<b>Drawn:</b> 8/26/2020
<b>SRP PI#:</b> 006148	<b>Drawn By:</b> RC

**Earth Systems**  
Environmental Engineering  
1625 Highway 71, Belmar, NJ 07719  
T. 732.739.6444 | F. 732.739.0451

This map was developed using New Jersey Department of Environmental Protection Geographic Information System Digital Data, but this secondary product has not been verified by NJDEP and is not state Authorized. Source: NAD 1983 (2011) New Jersey State Plane FIPS 2900 US FT.





**LEGEND**  
**TBA Concentration (ug/l)**  

<100

>100

100-1,000

10,000

Shallow Monitoring Well

Monitoring Well

Groundwater Elevation Contour

10" Spectra Pipeline, Above Ground

10" Spectra Pipeline, Underground

12" Spectra Pipeline, Above Ground

12" Spectra Pipeline, Underground

Buckeye Pipeline, Above Ground

Buckeye Pipeline, Underground

Colonial Pipeline, Above Ground

Colonial Pipeline, Underground

Unknown Pipeline, Above Ground

Unknown Pipeline, Underground

Williams Pipeline, Above Ground

Williams Pipeline, Underground

Former Smith Creek Channel

Underground Utility Lines/ Storm Water System

Well ID  
TBA Concentration in ug/L

**FIGURE: 5.22**  
**November 2019**  
**Groundwater TBA\* Map**  
**Screened Interval: 0-20' BGS**

**HESS CORPORATION**  
**FORMER PORT READING COMPLEX**  
**750 CLIFF ROAD**  
**PORT READING, NEW JERSEY**

**Project #:** 1114J01

**Drawn:** 8/26/2020

**SRP PI#:** 006148

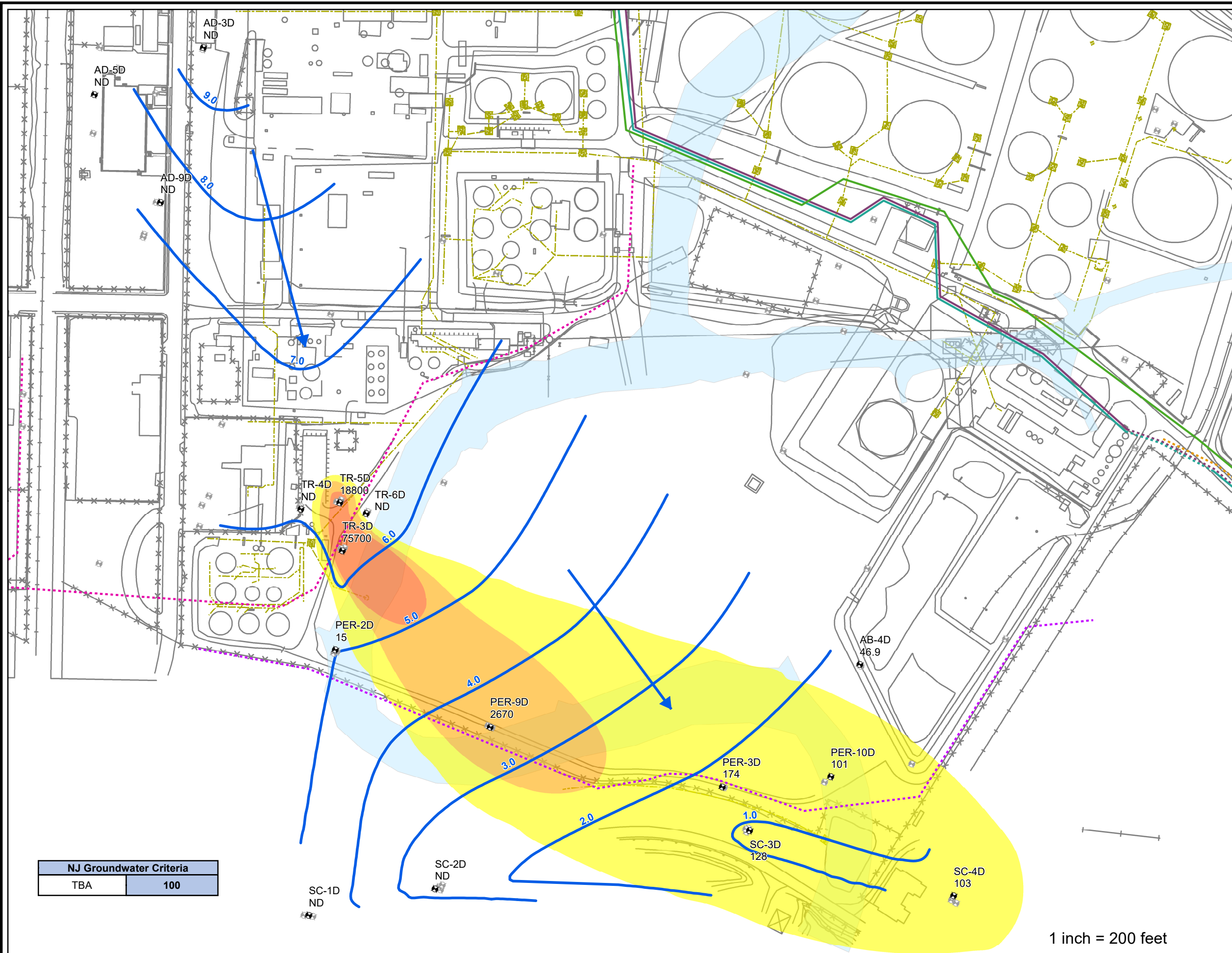
**Drawn By:** RC

**Earth Systems**  
Environmental Engineering  
1625 Highway 71, Belmar, NJ 07719  
T. 732.739.6444 | F. 732.739.0451

This map was developed using New Jersey Department of Environmental Protection Geographic Information System Digital Data, but this secondary product has not been verified by NJDEP and is not state Authorized. Source: NAD 1983 (2011) New Jersey State Plane FIPS 2900 US FT.

\* tertiary-Butyl alcohol (TBA)





NJ Groundwater Criteria	
TBA	100

\* tertiary-Butyl alcohol (TBA)

**LEGEND**  
TBA Concentration (ug/l)  

<100

100-1,000

1000-10,000

>10,000

Intermediate Monitoring Well

Monitoring Well

Groundwater Elevation Contour

10" Spectra Pipeline, Above Ground

10" Spectra Pipeline, Underground

12" Spectra Pipeline, Above Ground

12" Spectra Pipeline, Underground

Buckeye Pipeline, Above Ground

Buckeye Pipeline, Underground

Colonial Pipeline, Above Ground

Colonial Pipeline, Underground

Unknown Pipeline, Above Ground

Unknown Pipeline, Underground

Williams Pipeline, Above Ground

Williams Pipeline, Underground

Former Smith Creek Channel

Underground Utility Lines/ Storm Water System

Well ID

TBA Concentration in ug/L

**FIGURE: 5.23**  
**November 2019**  
**Groundwater TBA\* Map**  
**Screened Interval: 20-40' BGS**

**HESS CORPORATION**  
**FORMER PORT READING COMPLEX**  
**750 CLIFF ROAD**  
**PORT READING, NEW JERSEY**

<b>Project #:</b>	1114J01	<b>Drawn:</b>	8/31/2020
<b>SRP PI#:</b>	006148	<b>Drawn By:</b>	RC

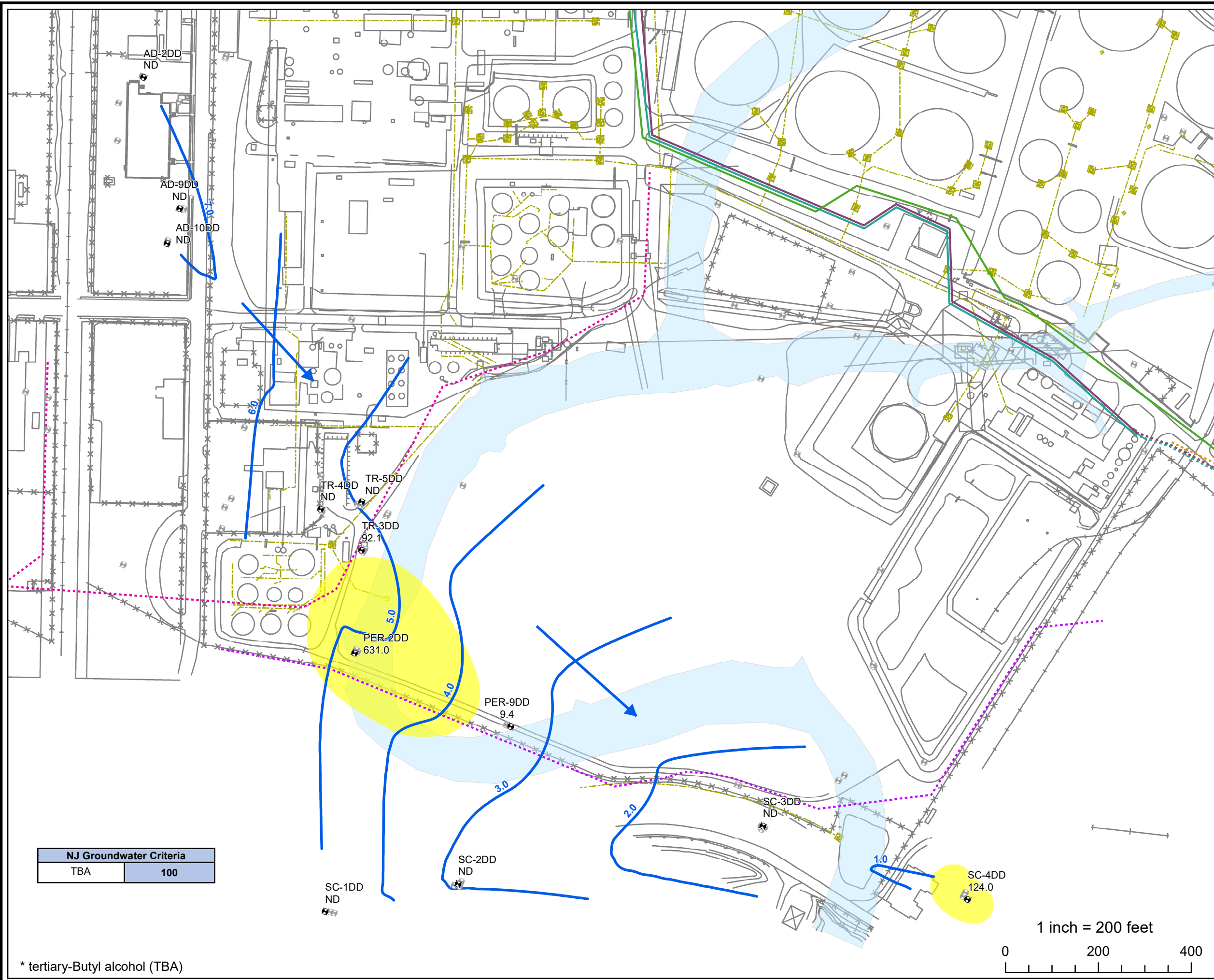
**Earth Systems**

Environmental Engineering

1625 Highway 71, Belmar, NJ 07719

T. 732.739.6444 | F. 732.739.0451

This map was developed using New Jersey Department of Environmental Protection Geographic Information System Digital Data, but this secondary product has not been verified by NJDEP and is not state Authorized. Source: NAD 1983 (2011) New Jersey State Plane FIPS 2900 US FT.



NJ Groundwater Criteria	
TBA	100

**LEGEND**

- TBA Concentration (ug/l)**
- <100
  - >100
- Deep Monitoring Well
- Monitoring Well
- Groundwater Elevation Contour
- 10" Spectra Pipeline, Above Ground
- 10" Spectra Pipeline, Underground
- 12" Spectra Pipeline, Above Ground
- 12" Spectra Pipeline, Underground
- Buckeye Pipeline, Above Ground
- Buckeye Pipeline, Underground
- Colonial Pipeline, Above Ground
- Colonial Pipeline, Underground
- Unknown Pipeline, Above Ground
- Unknown Pipeline, Underground
- Williams Pipeline, Above Ground
- Williams Pipeline, Underground
- Former Smith Creek Channel
- Underground Utility Lines/ Storm Water System

Well ID  
TBA Concentration in ug/L

**FIGURE: 5.24**  
**November 2019**  
**Groundwater TBA\* Map**  
**Screened Interval: 40-60' BGS**

**HESS CORPORATION**  
**FORMER PORT READING COMPLEX**  
**750 CLIFF ROAD**  
**PORT READING, NEW JERSEY**

<b>Project #:</b>	1114J01	<b>Drawn:</b>	8/26/2020
<b>SRP PI#:</b>	006148	<b>Drawn By:</b>	RC

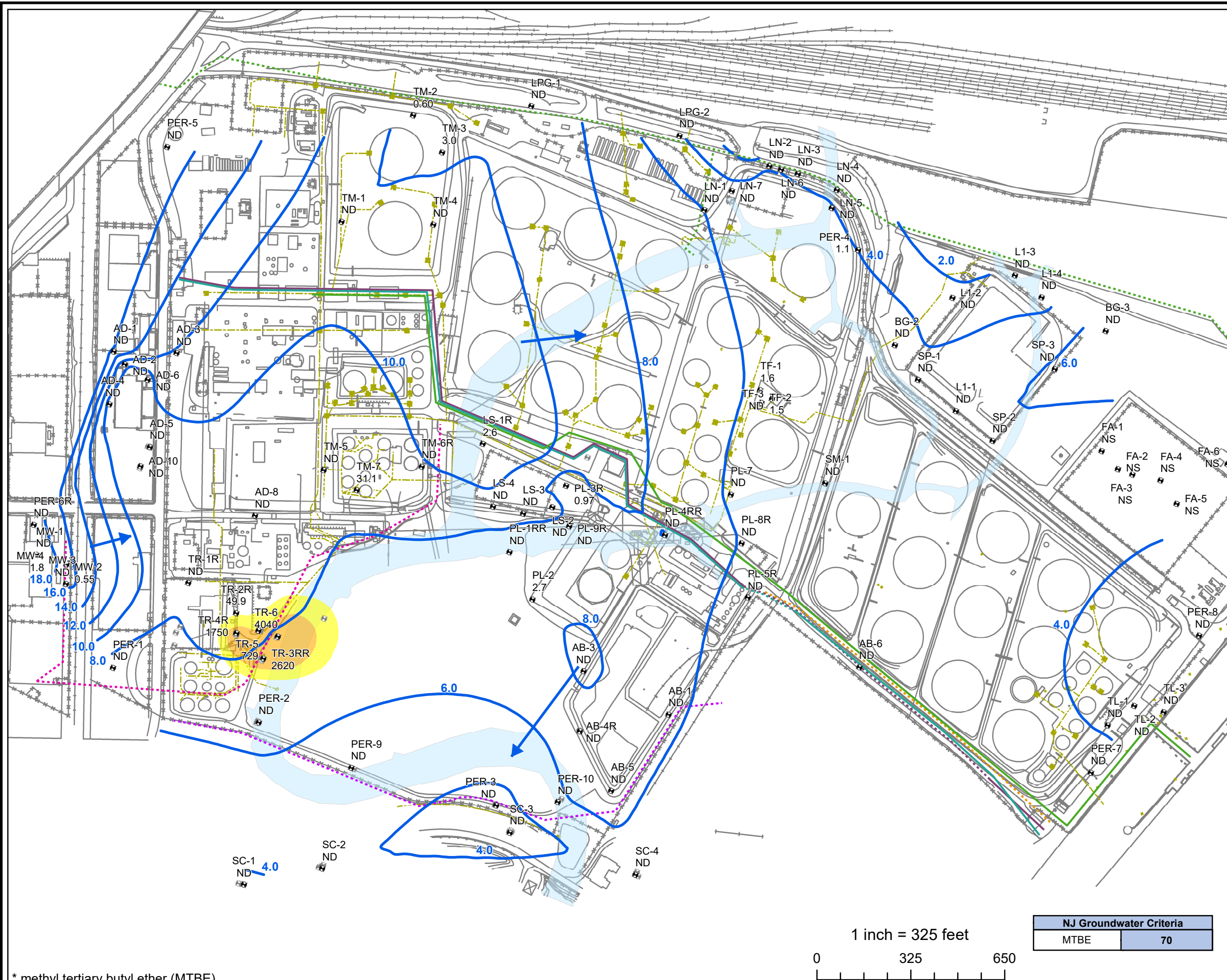
**Earth Systems**

Environmental Engineering  
1625 Highway 71, Belmar, NJ 07719  
T. 732.739.6444 | F. 732.739.0451

This map was developed using New Jersey Department of Environmental Protection Geographic Information System Digital Data, but this secondary product has not been verified by NJDEP and is not state Authorized. Source: NAD 1983 (2011) New Jersey State Plane FIPS 2900 US FT.

\* tertiary-Butyl alcohol (TBA)





**LEGEND**  
**MTBE Concentration (ug/l)**  

< 70

70-700

> 700

Shallow Monitoring Well

Monitoring Well

Groundwater Elevation Contour

10" Spectra Pipeline, Above Ground

10" Spectra Pipeline, Underground

12" Spectra Pipeline, Above Ground

12" Spectra Pipeline, Underground

Buckeye Pipeline, Above Ground

Buckeye Pipeline, Underground

Colonial Pipeline, Above Ground

Colonial Pipeline, Underground

Unknown Pipeline, Above Ground

Unknown Pipeline, Underground

Williams Pipeline, Above Ground

Williams Pipeline, Underground

Former Smith Creek Channel

Underground Utility Lines/ Storm Water System

ND: Non-Detect

NS: Not Sampled

Well ID

MTBE Concentration in ug/L

**FIGURE: 5.25**  
**November 2019**  
**Groundwater MTBE\* Map**  
**Screened Interval: 0-20' BGS**

**HESS CORPORATION**  
**FORMER PORT READING COMPLEX**  
**750 CLIFF ROAD**  
**PORT READING, NEW JERSEY**

<b>Project #:</b>	1114J01	<b>Drawn:</b>	8/26/2020
<b>SRP PI#:</b>	006148	<b>Drawn By:</b>	RC

**Earth Systems**  
Environmental Engineering  
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This map was developed using New Jersey Department of Environmental Protection Geographic Information System Digital Data, but this secondary product has not been verified by NJDEP and is not state Authorized. Source: NAD 1983 (2011) New Jersey State Plane FIPS 2900 US FT.

\* methyl tertiary butyl ether (MTBE)

1 inch = 325 feet

0

325

650

NJ Groundwater Criteria	
MTBE	70





**LEGEND**

MTBE Concentration (ug/l)

- < 70
- 70-700
- 700-7,000
- 7,000-70,000
- > 70,000

Intermediate Monitoring Well

Monitoring Well

Groundwater Elevation Contour

10" Spectra Pipeline, Above Ground

10" Spectra Pipeline, Underground

12" Spectra Pipeline, Above Ground

12" Spectra Pipeline, Underground

Buckeye Pipeline, Above Ground

Buckeye Pipeline, Underground

Colonial Pipeline, Above Ground

Colonial Pipeline, Underground

Unknown Pipeline, Above Ground

Unknown Pipeline, Underground

Williams Pipeline, Above Ground

Williams Pipeline, Underground

Former Smith Creek Channel

Underground Utility Lines/ Storm Water System

Well ID

MTBE Concentration in ug/L

**FIGURE: 5.26**

**November 2019**

**Groundwater MTBE\* Map**

**Screened Interval: 20-40' BGS**

**HESS CORPORATION**

**FORMER PORT READING COMPLEX**

**750 CLIFF ROAD**

**PORT READING, NEW JERSEY**

<b>Project #:</b>	1114J01	<b>Drawn:</b>	8/26/2020
<b>SRP PI#:</b>	006148	<b>Drawn By:</b>	RC

**Earth Systems**

Environmental Engineering

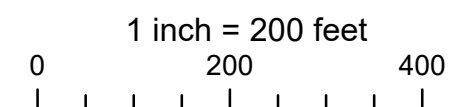
1625 Highway 71, Belmar, NJ 07719

T. 732.739.6444 | F. 732.739.0451

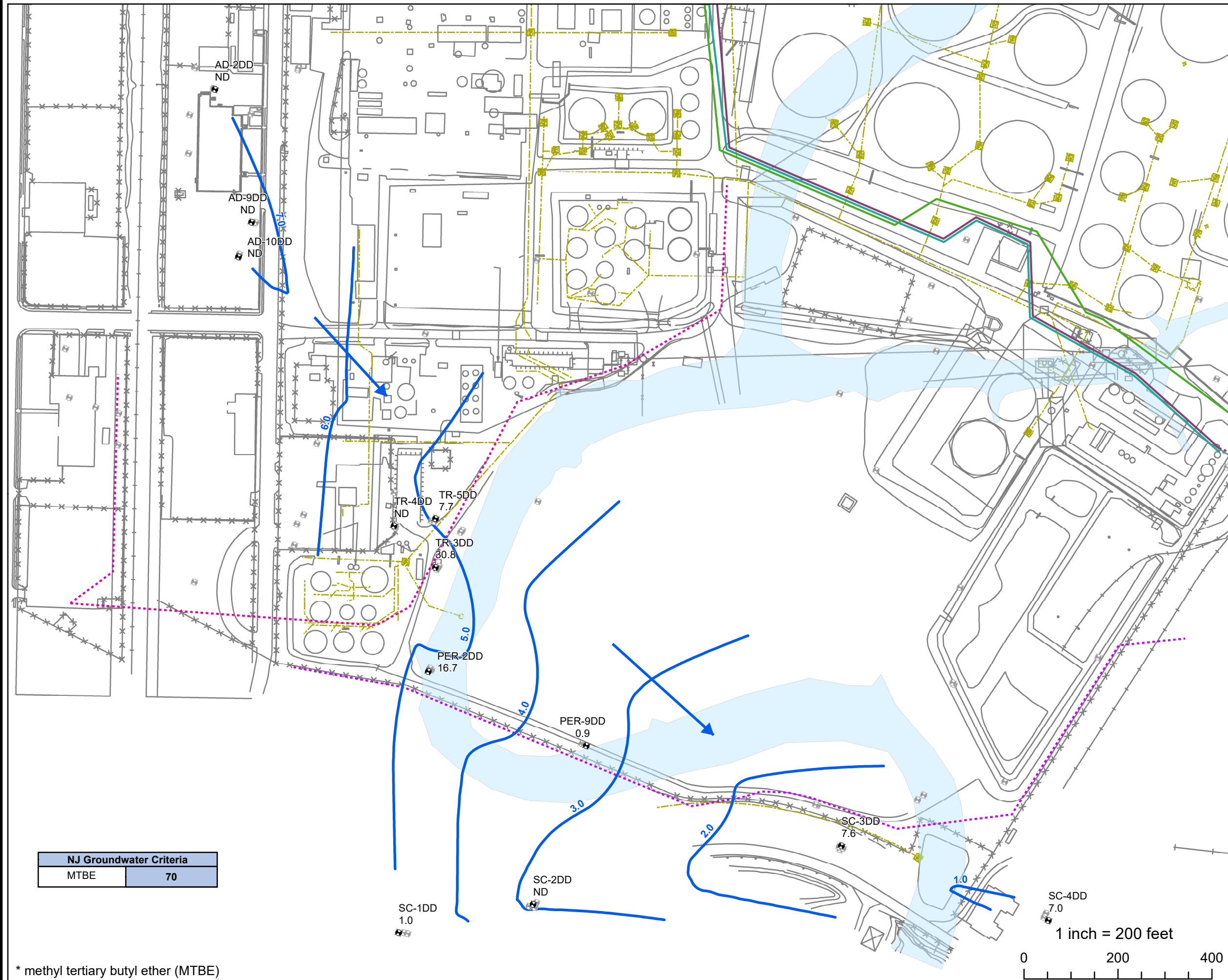
This map was developed using New Jersey Department of Environmental Protection Geographic Information System Digital Data, but this secondary product has not been verified by NJDEP and is not state Authorized. Source: NAD 1983 (2011) New Jersey State Plane FIPS 2900 US FT.

NJ Groundwater Criteria	
MTBE	70

\* methyl tertiary butyl ether (MTBE)







NJ Groundwater Criteria	
MTBE	70

**LEGEND**  
MTBE Concentration (ug/l)  

< 70

Deep Monitoring Well

Monitoring Well

Groundwater Elevation Contour

10" Spectra Pipeline, Above Ground

10" Spectra Pipeline, Underground

12" Spectra Pipeline, Above Ground

12" Spectra Pipeline, Underground

Buckeye Pipeline, Above Ground

Buckeye Pipeline, Underground

Colonial Pipeline, Above Ground

Colonial Pipeline, Underground

Unknown Pipeline, Above Ground

Unknown Pipeline, Underground

Williams Pipeline, Above Ground

Williams Pipeline, Underground

Former Smith Creek Channel

Underground Utility Lines/ Storm Water System

MTBE Concentration in ug/L

**FIGURE: 5.27**  
**November 2019**  
**Groundwater MTBE\* Map**  
**Screened Interval: 40-60' BGS**

**HESS CORPORATION**  
**FORMER PORT READING COMPLEX**  
**750 CLIFF ROAD**  
**PORT READING, NEW JERSEY**

<b>Project #:</b>	1114J01	<b>Drawn:</b>	8/26/2020
<b>SRP PI#:</b>	006148	<b>Drawn By:</b>	RC

Earth Systems

Environmental Engineering  
1625 Highway 71, Belmar, NJ 07719  
T. 732.739.6444 | F. 732.739.0451

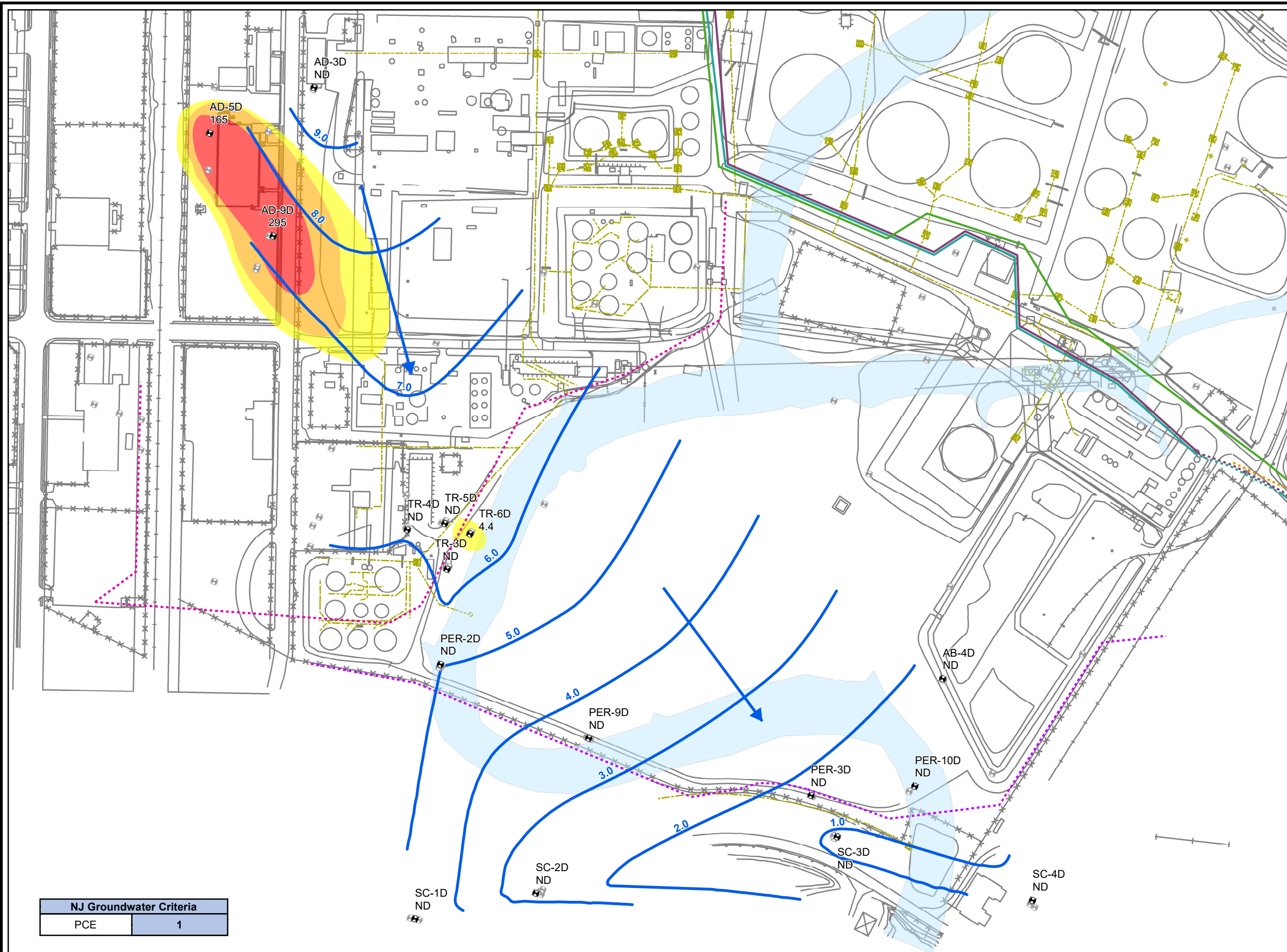
This map was developed using New Jersey Department of Environmental Protection Geographic Information System Digital Data, but this secondary product has not been verified by NJDEP and is not state Authorized. Source: NAD 1983 (2011) New Jersey State Plane FIPS 2900 US FT.

\* methyl tertiary butyl ether (MTBE)









**LEGEND**

**PCE Concentration (ug/l)**

< 1
1-10
10-100
> 100

- Intermediate Monitoring Well
- Monitoring Well
- Groundwater Elevation Contour
- 10" Spectra Pipeline, Above Ground
- 10" Spectra Pipeline, Underground
- 12" Spectra Pipeline, Above Ground
- 12" Spectra Pipeline, Underground
- Buckeye Pipeline, Above Ground
- Buckeye Pipeline, Underground
- Colonial Pipeline, Above Ground
- Colonial Pipeline, Underground
- Unknown Pipeline, Above Ground
- Unknown Pipeline, Underground
- Williams Pipeline, Above Ground
- Williams Pipeline, Underground
- Former Smith Creek Channel
- Underground Utility Lines/ Storm Water System

Well ID  
PCE Concentration in ug/L

**FIGURE: 5.29**  
**November 2019**  
**Groundwater PCE\* Map**  
**Screened Interval: 20-40' BGS**

**HESS CORPORATION**  
**FORMER PORT READING COMPLEX**  
**750 CLIFF ROAD**  
**PORT READING, NEW JERSEY**

<b>Project #:</b> 1114J01	<b>Drawn:</b> 8/31/2020
<b>SRP PI#:</b> 006148	<b>Drawn By:</b> RC

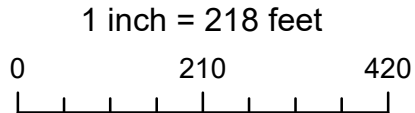
**Earth Systems**  
Environmental Engineering  
1625 Highway 71, Belmar, NJ 07719  
T. 732.739.6444 | F. 732.739.0451

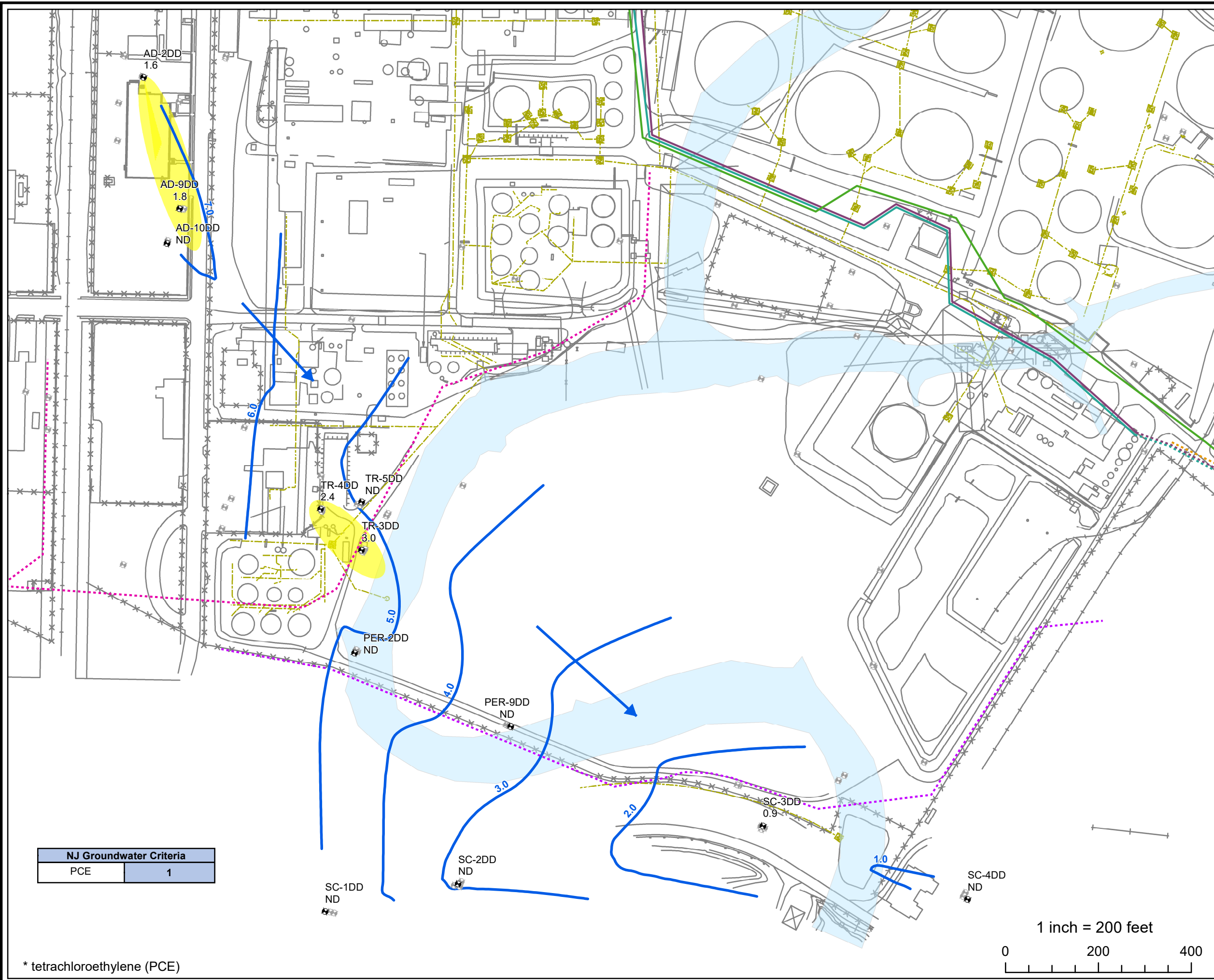
This map was developed using New Jersey Department of Environmental Protection Geographic Information System Digital Data, but this secondary product has not been verified by NJDEP and is not state Authorized. Source: NAD 1983 (2011) New Jersey State Plane FIPS 2900 US FT.

NJ Groundwater Criteria	
PCE	1

\* tetrachloroethylene (PCE)

Note: Isopleths are hand-drawn





NJ Groundwater Criteria	
PCE	1

\* tetrachloroethylene (PCE)

**LEGEND**

- PCE Concentration (ug/L)**
- < 1
  - > 1
- Deep Monitoring Well
  - Monitoring Well
  - Groundwater Elevation Contour
  - 10" Spectra Pipeline, Above Ground
  - 10" Spectra Pipeline, Underground
  - 12" Spectra Pipeline, Above Ground
  - 12" Spectra Pipeline, Underground
  - Buckeye Pipeline, Underground
  - Colonial Pipeline, Above Ground
  - Unknown Pipeline, Underground
  - Williams Pipeline, Underground
  - Former Smith Creek Channel
  - Underground Utility Lines/ Storm Water System

Well ID  
PCE Concentration in ug/L

**FIGURE: 5.30**  
**November 2019**  
**Groundwater PCE\* Map**  
**Screened Interval: 40-60' BGS**

**HESS CORPORATION**  
**FORMER PORT READING COMPLEX**  
**750 CLIFF ROAD**  
**PORT READING, NEW JERSEY**

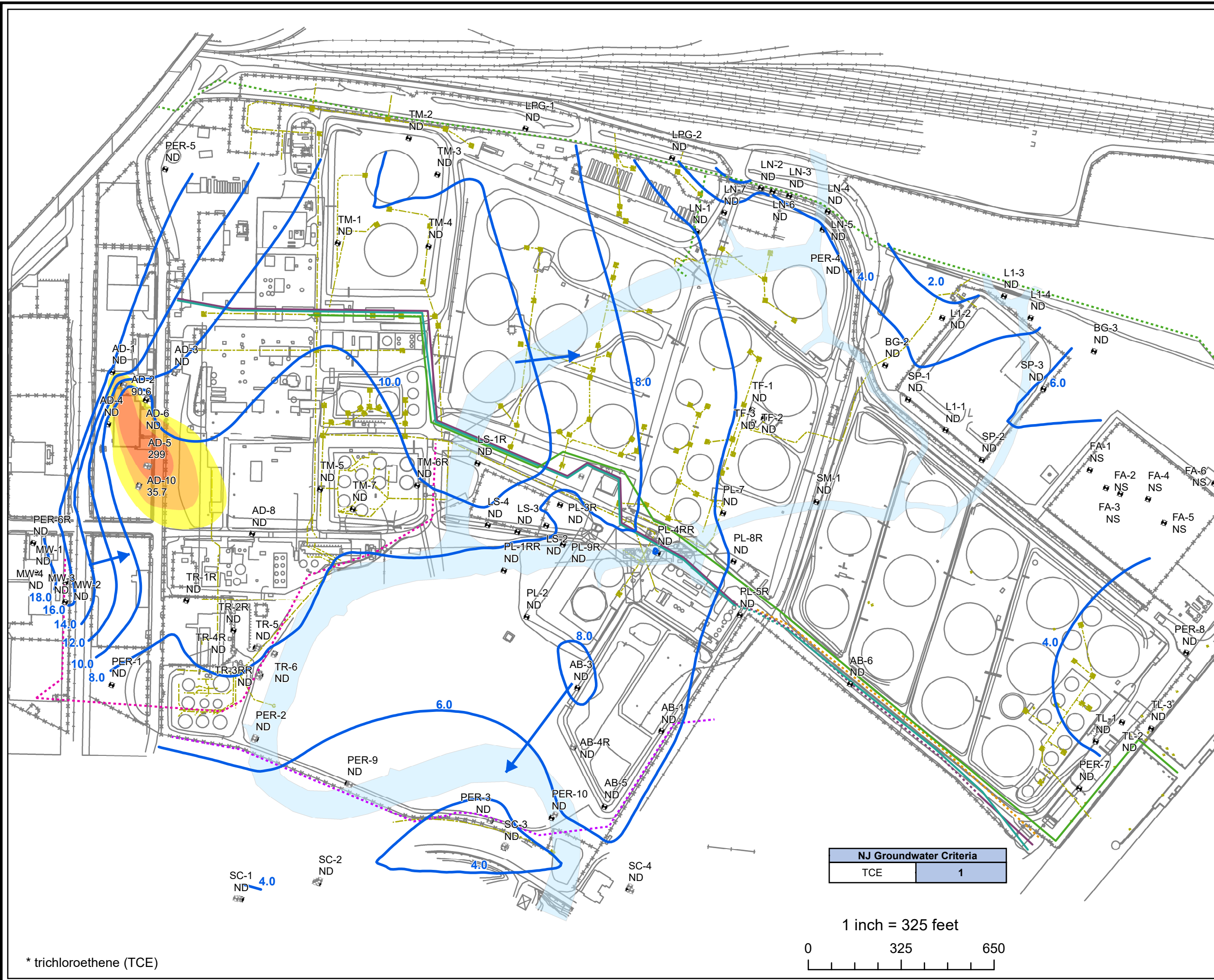
<b>Project #:</b>	1114J01	<b>Drawn:</b>	8/26/2020
<b>SRP PI#:</b>	006148	<b>Drawn By:</b>	RC

**Earth Systems**

Environmental Engineering  
1625 Highway 71, Belmar, NJ 07719  
T. 732.739.6444 | F. 732.739.0451

This map was developed using New Jersey Department of Environmental Protection Geographic Information System Digital Data, but this secondary product has not been verified by NJDEP and is not state Authorized. Source: NAD 1983 (2011) New Jersey State Plane FIPS 2900 US FT.





**LEGEND**  
TCE Concentration (ug/l)  

< 1

1-10

10-100

> 100

Shallow Monitoring Well

Monitoring Well

Groundwater Elevation Contour

10" Spectra Pipeline, Above Ground

10" Spectra Pipeline, Underground

12" Spectra Pipeline, Above Ground

12" Spectra Pipeline, Underground

Buckeye Pipeline, Above Ground

Buckeye Pipeline, Underground

Colonial Pipeline, Above Ground

Colonial Pipeline, Underground

Unknown Pipeline, Above Ground

Unknown Pipeline, Underground

Williams Pipeline, Above Ground

Williams Pipeline, Underground

Former Smith Creek Channel

Underground Utility Lines/ Storm Water System

Well ID  
TCE Concentration in ug/L

**FIGURE: 5.31**  
**November 2019**  
**Groundwater TCE\* Map**  
**Screened Interval: 0-20' BGS**

**HESS CORPORATION**  
**FORMER PORT READING COMPLEX**  
**750 CLIFF ROAD**  
**PORT READING, NEW JERSEY**

Project #: 1114J01

Drawn: 8/26/2020

SRP PI#: 006148

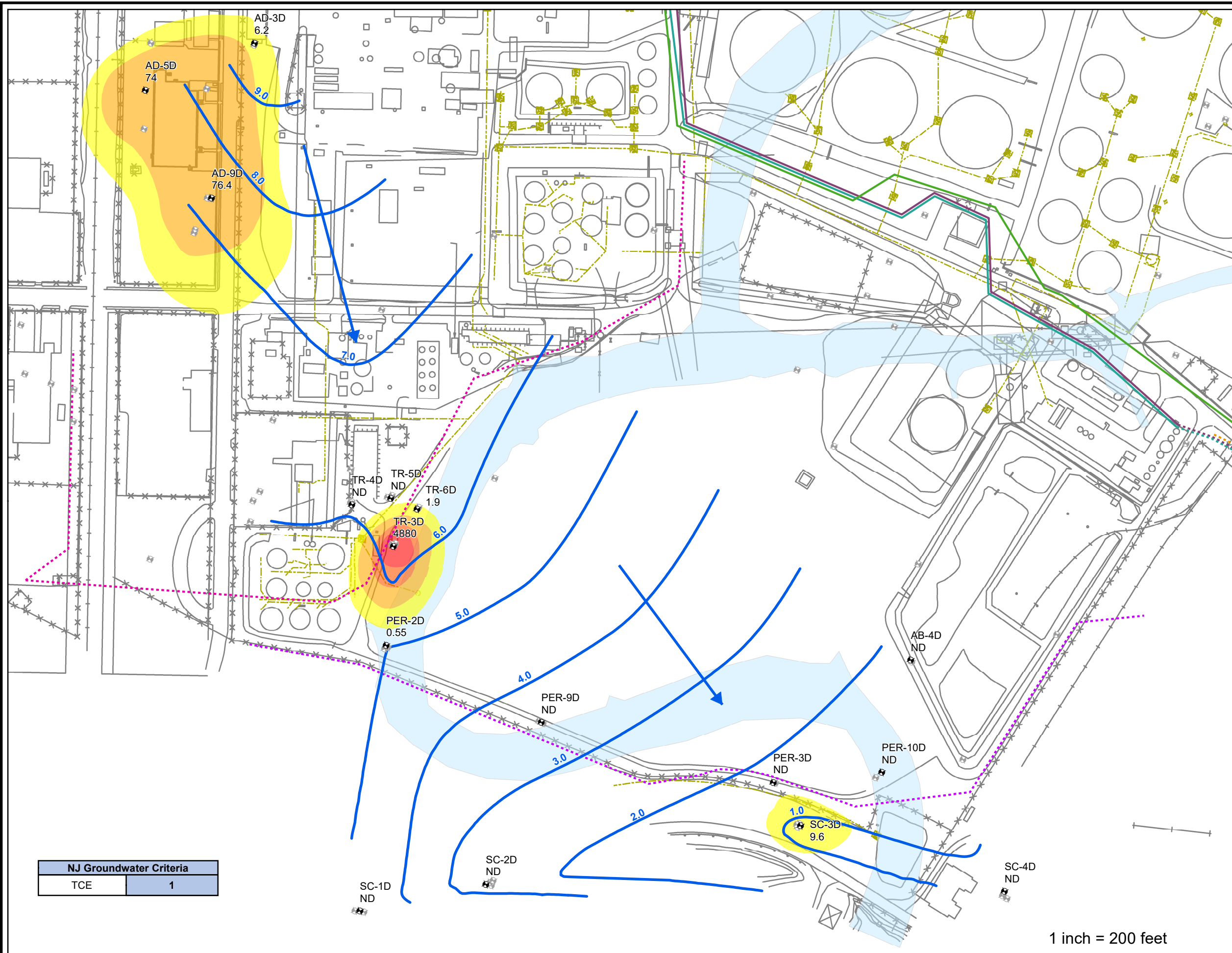
Drawn By: RC

**Earth Systems**  
Environmental Engineering  
1625 Highway 71, Belmar, NJ 07719  
T. 732.739.6444 | F. 732.739.0451

This map was developed using New Jersey Department of Environmental Protection Geographic Information System Digital Data, but this secondary product has not been verified by NJDEP and is not state Authorized. Source: NAD 1983 (2011) New Jersey State Plane FIPS 2900 US FT.

\* trichloroethene (TCE)





**LEGEND**  
TCE Concentration (ug/l)  

< 1
1-10
10-100
100-1000
> 1000

- Intermediate Monitoring Well
- Monitoring Well
- Groundwater Elevation Contour
- 10" Spectra Pipeline, Above Ground
- 10" Spectra Pipeline, Underground
- 12" Spectra Pipeline, Above Ground
- 12" Spectra Pipeline, Underground
- Buckeye Pipeline, Above Ground
- Buckeye Pipeline, Underground
- Colonial Pipeline, Above Ground
- Colonial Pipeline, Underground
- Unknown Pipeline, Above Ground
- Unknown Pipeline, Underground
- Williams Pipeline, Above Ground
- Williams Pipeline, Underground
- Former Smith Creek Channel
- Underground Utility Lines/ Storm Water System

Well ID  
TCE Concentration in ug/L

**FIGURE: 5.32**  
**November 2019**  
**Groundwater TCE\* Map**  
**Screened Interval: 20-40' BGS**

**HESS CORPORATION**  
**FORMER PORT READING COMPLEX**  
**750 CLIFF ROAD**  
**PORT READING, NEW JERSEY**

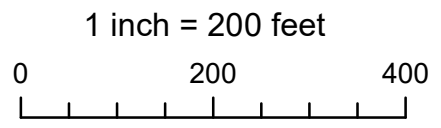
<b>Project #:</b>	1114J01	<b>Drawn:</b>	8/26/2020
<b>SRP PI#:</b>	006148	<b>Drawn By:</b>	RC

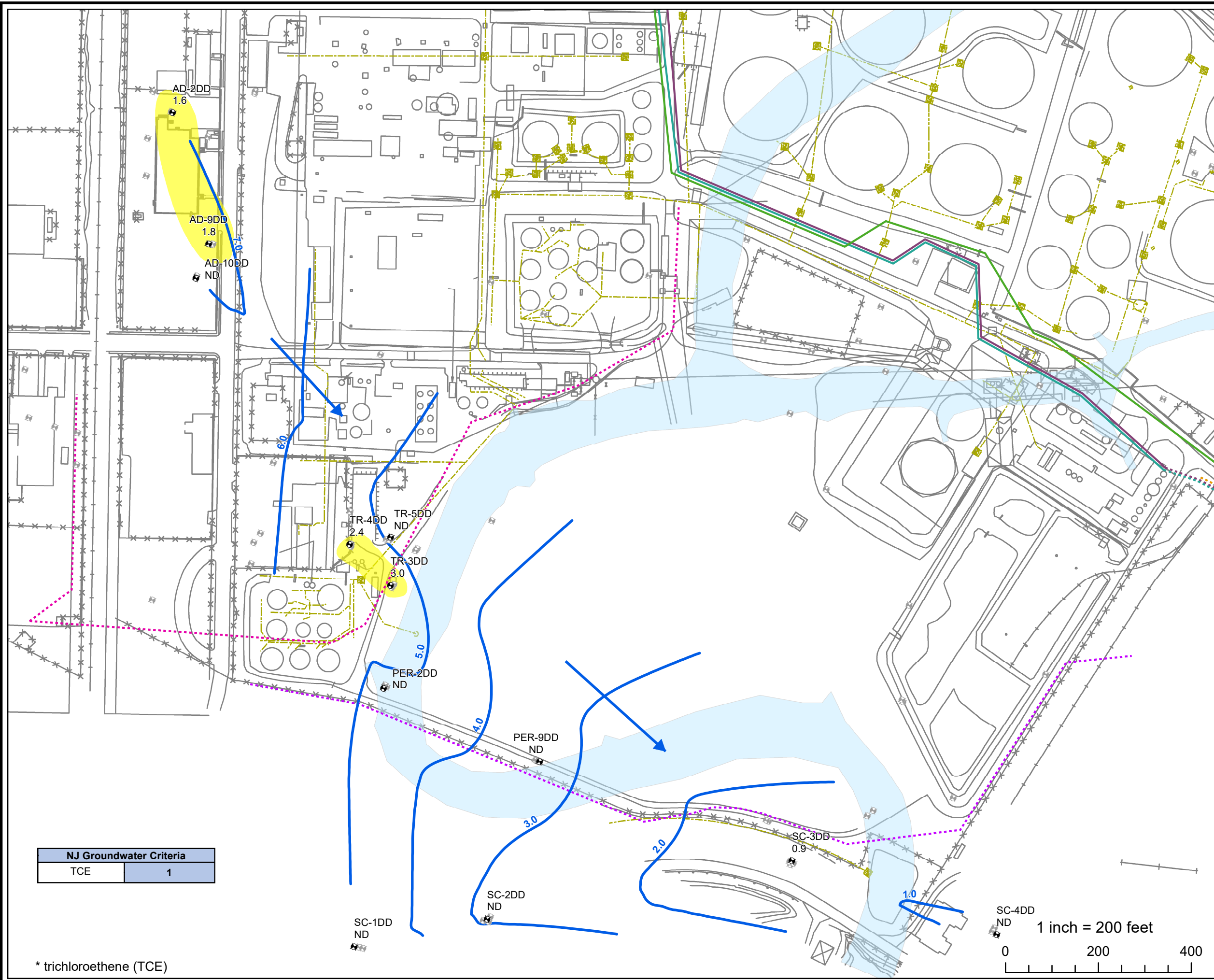
**Earth Systems**  
Environmental Engineering  
1625 Highway 71, Belmar, NJ 07719  
T. 732.739.6444 | F. 732.739.0451

This map was developed using New Jersey Department of Environmental Protection Geographic Information System Digital Data, but this secondary product has not been verified by NJDEP and is not state Authorized. Source: NAD 1983 (2011) New Jersey State Plane FIPS 2900 US FT.

NJ Groundwater Criteria	
TCE	1

\* trichloroethene (TCE)





NJ Groundwater Criteria	
TCE	1

\* trichloroethene (TCE)

**LEGEND**

**TCE Concentration (ug/l)**

< 1

> 1

Deep Monitoring Well

Monitoring Well

Groundwater Elevation Contour

10" Spectra Pipeline, Above Ground

10" Spectra Pipeline, Underground

12" Spectra Pipeline, Above Ground

12" Spectra Pipeline, Underground

Buckeye Pipeline, Above Ground

Buckeye Pipeline, Underground

Colonial Pipeline, Above Ground

Colonial Pipeline, Underground

Unknown Pipeline, Above Ground

Unknown Pipeline, Underground

Williams Pipeline, Above Ground

Williams Pipeline, Underground

Former Smith Creek Channel

Underground Utility Lines/ Storm Water System

Well ID

TCE Concentration in ug/L

**FIGURE: 5.33**  
**November 2019**  
**Groundwater TCE\* Map**  
**Screened Interval: 40-60' BGS**

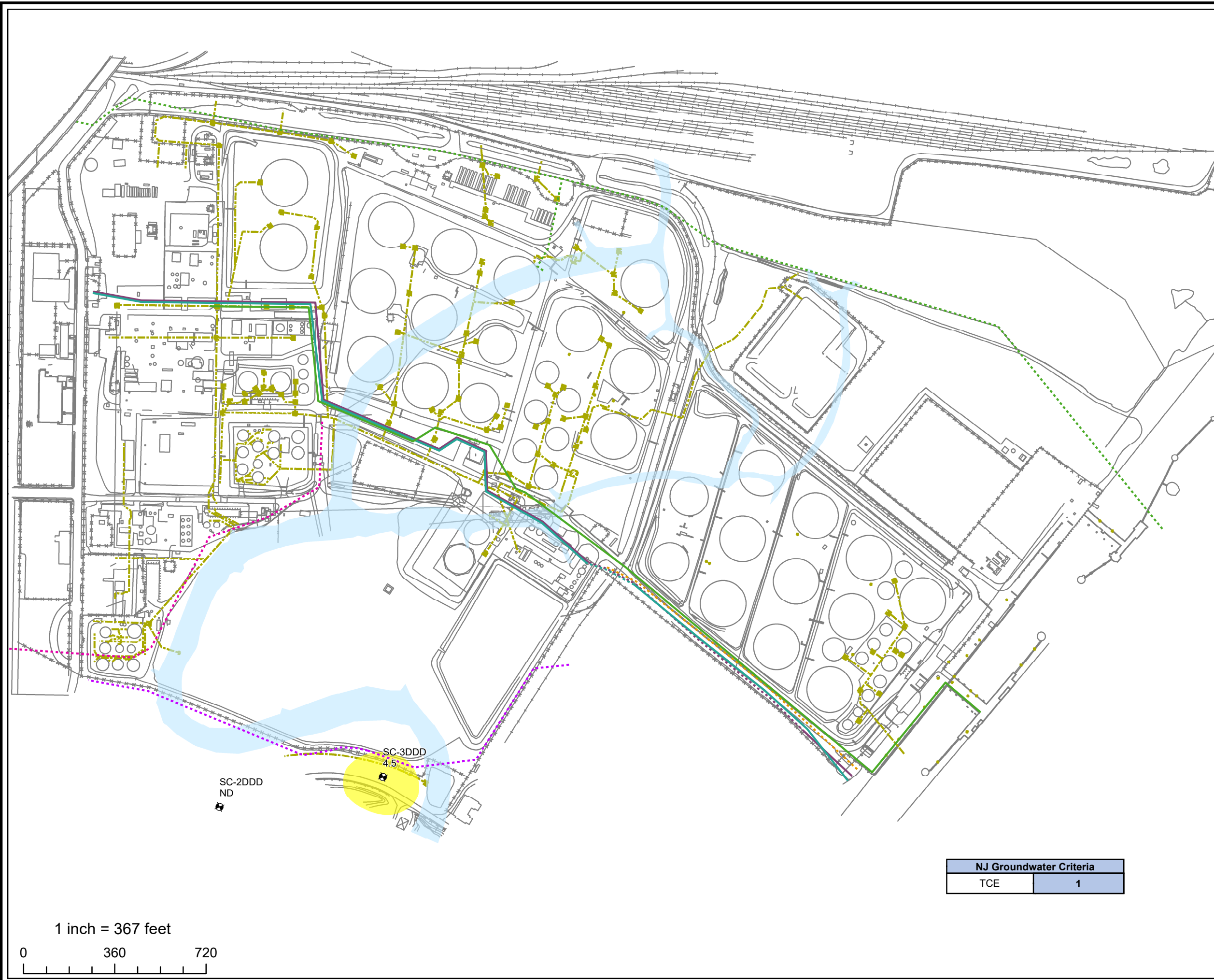
**HESS CORPORATION**  
**FORMER PORT READING COMPLEX**  
**750 CLIFF ROAD**  
**PORT READING, NEW JERSEY**

<b>Project #:</b>	1114J01	<b>Drawn:</b>	8/26/2020
<b>SRP PI#:</b>	006148	<b>Drawn By:</b>	RC

**Earth Systems**  
Environmental Engineering  
1625 Highway 71, Belmar, NJ 07719  
T. 732.739.6444 | F. 732.739.0451

This map was developed using New Jersey Department of Environmental Protection Geographic Information System Digital Data, but this secondary product has not been verified by NJDEP and is not state Authorized. Source: NAD 1983 (2011) New Jersey State Plane FIPS 2900 US FT.





**LEGEND**  
TCE Concentration (ug/l)  

< 1

> 1

60-80' Monitoring Well

Monitoring Well

10" Spectra Pipeline, No

10" Spectra Pipeline, Yes

12" Spectra Pipeline, No

12" Spectra Pipeline, Yes

Buckeye Pipeline, No

Buckeye Pipeline, Yes

Colonial Pipeline, No

Colonial Pipeline, Yes

Unknown Pipeline, No

Unknown Pipeline, Yes

Williams Pipeline, No

Williams Pipeline, Yes

Former Smith Creek Channel

Underground Utility Lines

Well ID  
TCE Concentration in ug/L

**FIGURE: 5.34**  
**November 2019**  
**Groundwater TCE\* Map**  
**Screened Interval: 60-80' BGS**

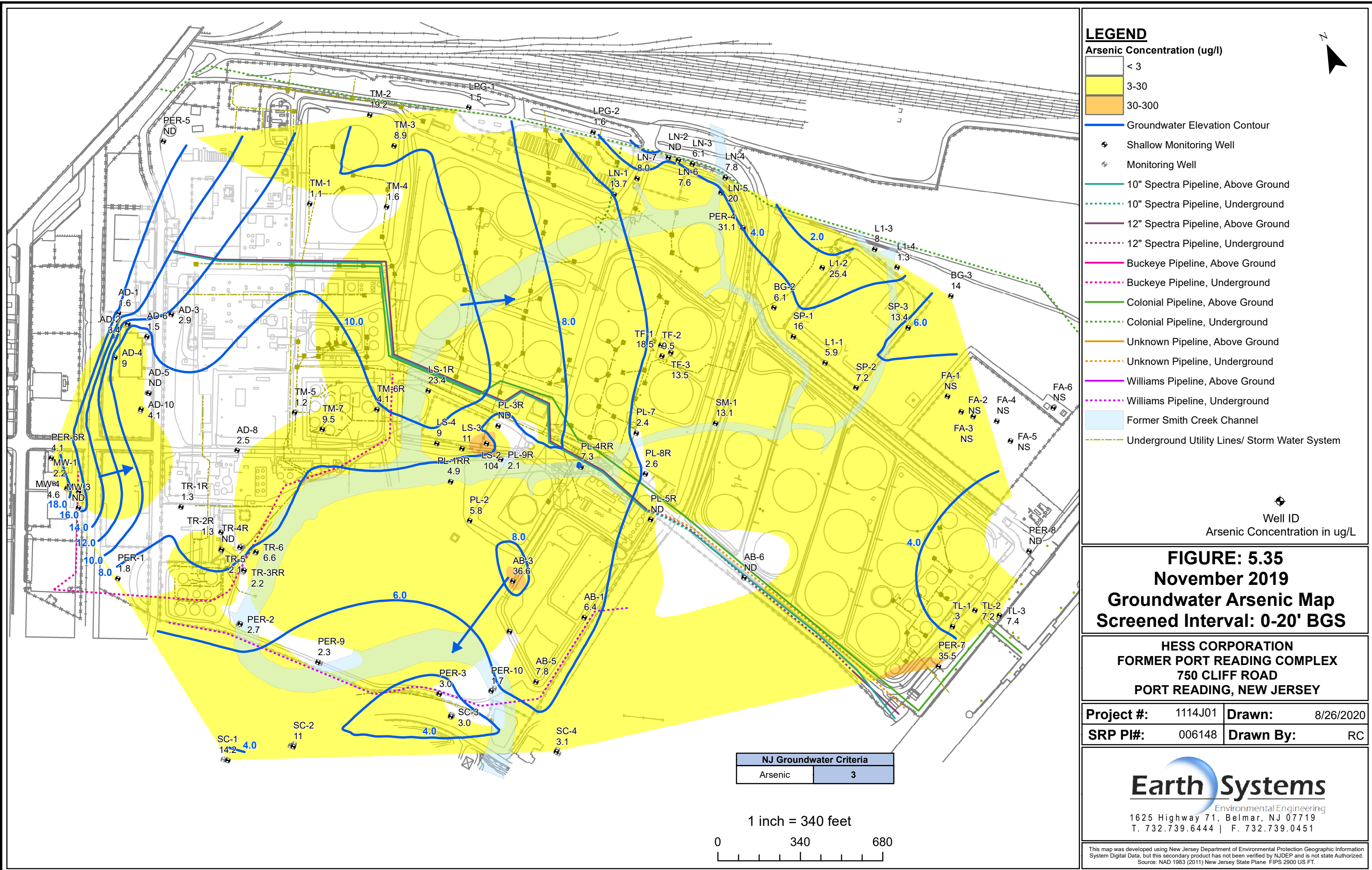
**HESS CORPORATION**  
**FORMER PORT READING COMPLEX**  
**750 CLIFF ROAD**  
**PORT READING, NEW JERSEY**

<b>Project #:</b>	1114J01	<b>Drawn:</b>	8/26/2020
<b>SRP PI#:</b>	006148	<b>Drawn By:</b>	RC

  
Environmental Engineering  
1625 Highway 71, Belmar, NJ 07719  
T. 732.739.6444 | F. 732.739.0451

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**LEGEND**

- Arsenic Concentration (ug/l)**
- < 3
  - 3-30
  - 30-300
- Groundwater Elevation Contour
- Shallow Monitoring Well
- Monitoring Well
- 10" Spectra Pipeline, Above Ground
- 10" Spectra Pipeline, Underground
- 12" Spectra Pipeline, Above Ground
- 12" Spectra Pipeline, Underground
- Buckeye Pipeline, Above Ground
- Buckeye Pipeline, Underground
- Colonial Pipeline, Above Ground
- Colonial Pipeline, Underground
- Unknown Pipeline, Above Ground
- Unknown Pipeline, Underground
- Williams Pipeline, Above Ground
- Williams Pipeline, Underground
- Former Smith Creek Channel
- Underground Utility Lines/ Storm Water System
- Well ID
- Arsenic Concentration in ug/L

**FIGURE: 5.35**  
**November 2019**  
**Groundwater Arsenic Map**  
**Screened Interval: 0-20' BGS**

**HESS CORPORATION**  
**FORMER PORT READING COMPLEX**  
**750 CLIFF ROAD**  
**PORT READING, NEW JERSEY**

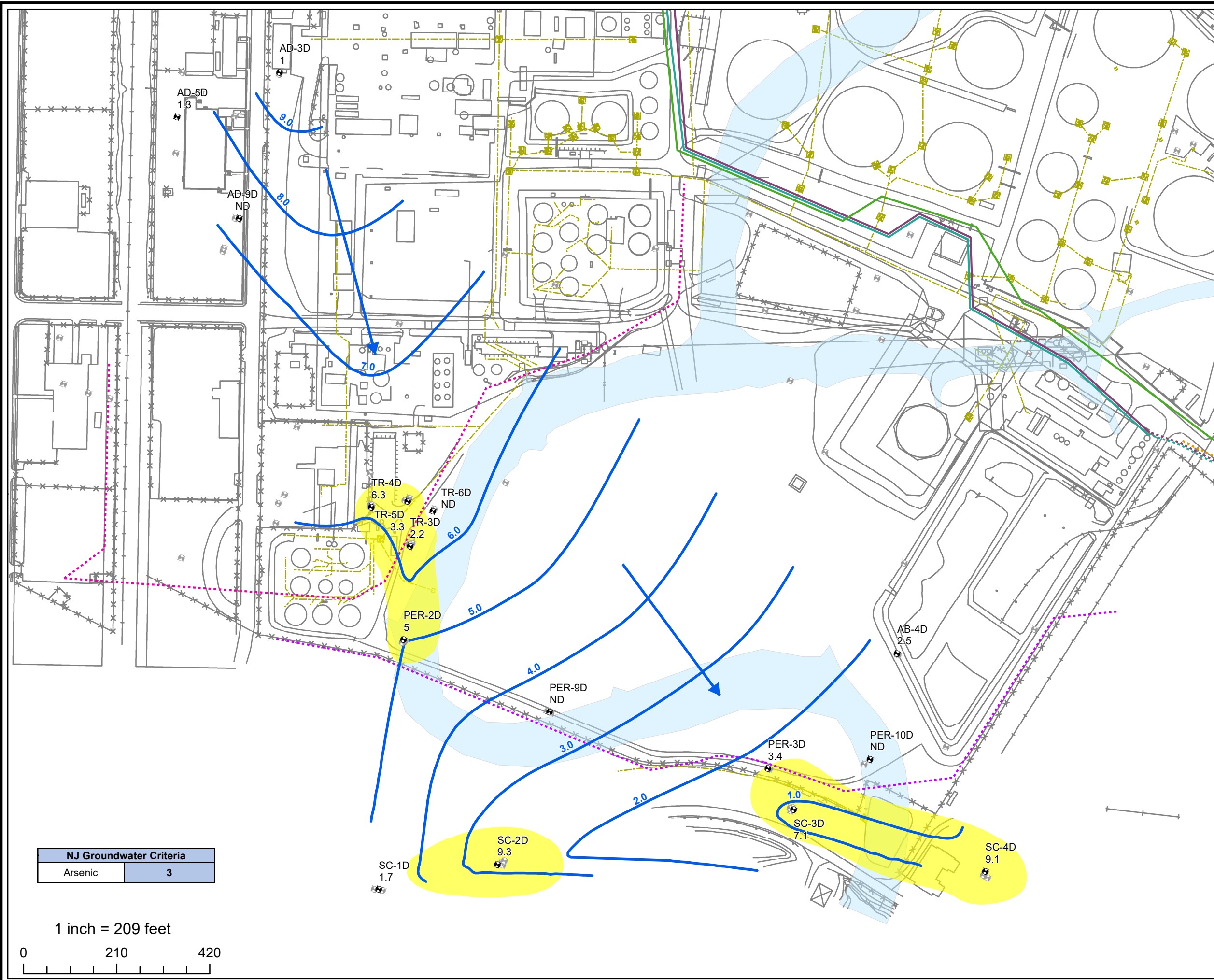
Project #:	1114J01	Drawn:	8/26/2020
SRP PI#:	006148	Drawn By:	RC



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### LEGEND

**Arsenic Concentration (ug/l)**

- < 3
- > 3

- Intermediate Monitoring Well
- Monitoring Well
- November2019SitewideIntermediate
- 10" Spectra Pipeline, Above Ground
- 10" Spectra Pipeline, Underground
- 12" Spectra Pipeline, Above Ground
- 12" Spectra Pipeline, Underground
- Buckeye Pipeline, Above Ground
- Buckeye Pipeline, Underground
- Colonial Pipeline, Above Ground
- Colonial Pipeline, Underground
- Unknown Pipeline, Above Ground
- Unknown Pipeline, Underground
- Williams Pipeline, Above Ground
- Williams Pipeline, Underground
- Former Smith Creek Channel
- Underground Utility Lines/ Storm Water System

Well ID

Arsenic Concentration in ug/L

**FIGURE: 5.36**

**November 2019**

**Groundwater Arsenic Map**

**Screened Interval: 20-40' BGS**

**HESS CORPORATION**

**FORMER PORT READING COMPLEX**

**750 CLIFF ROAD**

**PORT READING, NEW JERSEY**

<b>Project #:</b>	1114J01	<b>Drawn:</b>	8/26/2020
<b>SRP PI#:</b>	006148	<b>Drawn By:</b>	RC

**Earth Systems**

Environmental Engineering

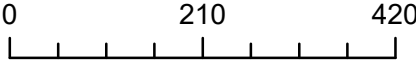
1625 Highway 71, Belmar, NJ 07719

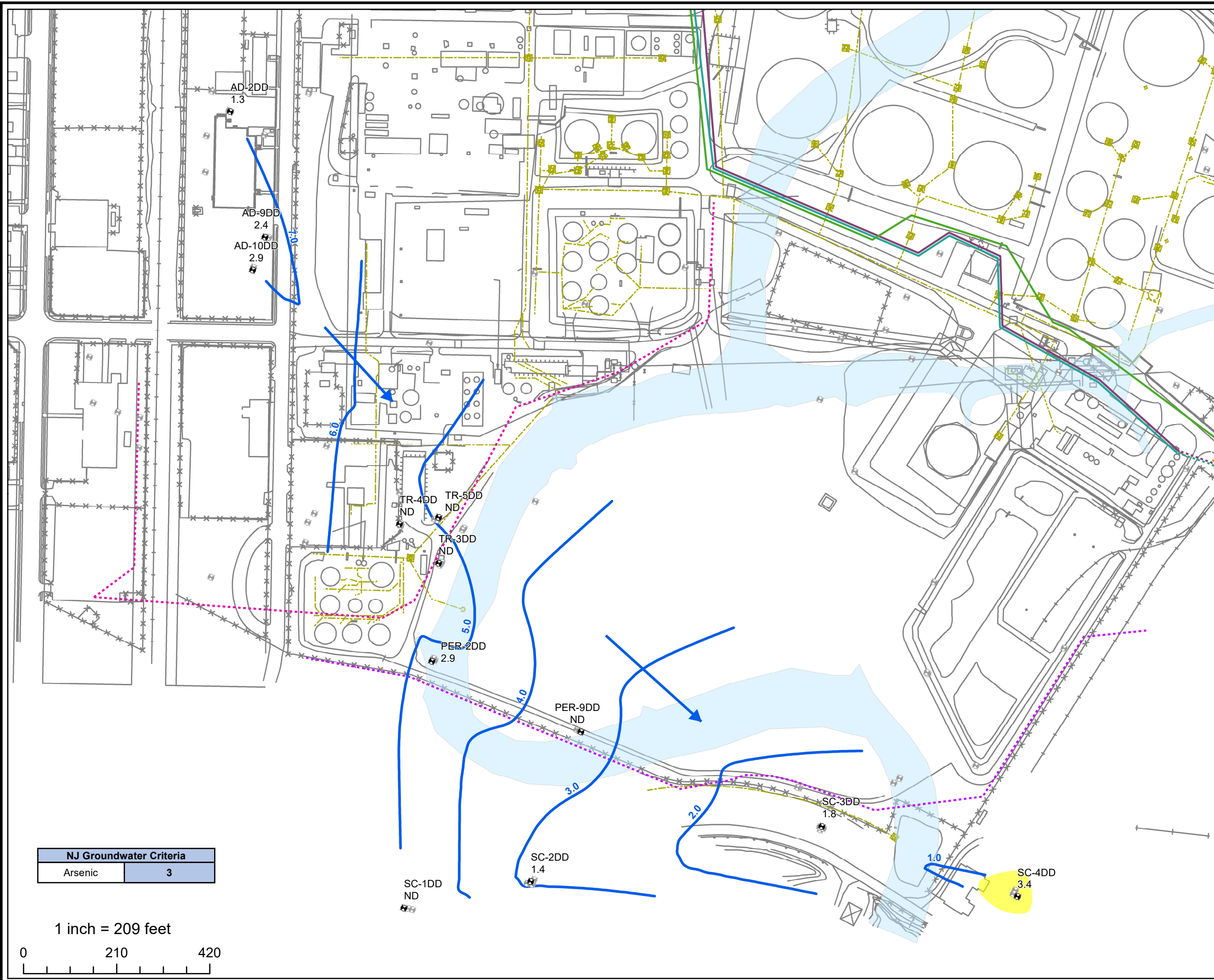
T. 732.739.6444 | F. 732.739.0451

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NJ Groundwater Criteria	
Arsenic	3

1 inch = 209 feet





**LEGEND**  
**Arsenic Concentration (ug/l)**  

< 3

> 3

Deep Monitoring Well

Monitoring Well

November 2019 Sitewide Deep

10" Spectra Pipeline, Above Ground

10" Spectra Pipeline, Underground

12" Spectra Pipeline, Above Ground

12" Spectra Pipeline, Underground

Buckeye Pipeline, Above Ground

Buckeye Pipeline, Underground

Colonial Pipeline, Above Ground

Colonial Pipeline, Underground

Unknown Pipeline, Above Ground

Unknown Pipeline, Underground

Williams Pipeline, Above Ground

Williams Pipeline, Underground

Former Smith Creek Channel

Underground Utility Lines/ Storm Water System

Well ID

Arsenic Concentration in ug/L

**FIGURE: 5.37**  
**November 2019**  
**Groundwater Arsenic Map**  
**Screened Interval: 40-60' BGS**

**HESS CORPORATION**  
**FORMER PORT READING COMPLEX**  
**750 CLIFF ROAD**  
**PORT READING, NEW JERSEY**

<b>Project #:</b>	1114J01	<b>Drawn:</b>	8/26/2020
<b>SRP PI#:</b>	006148	<b>Drawn By:</b>	RC

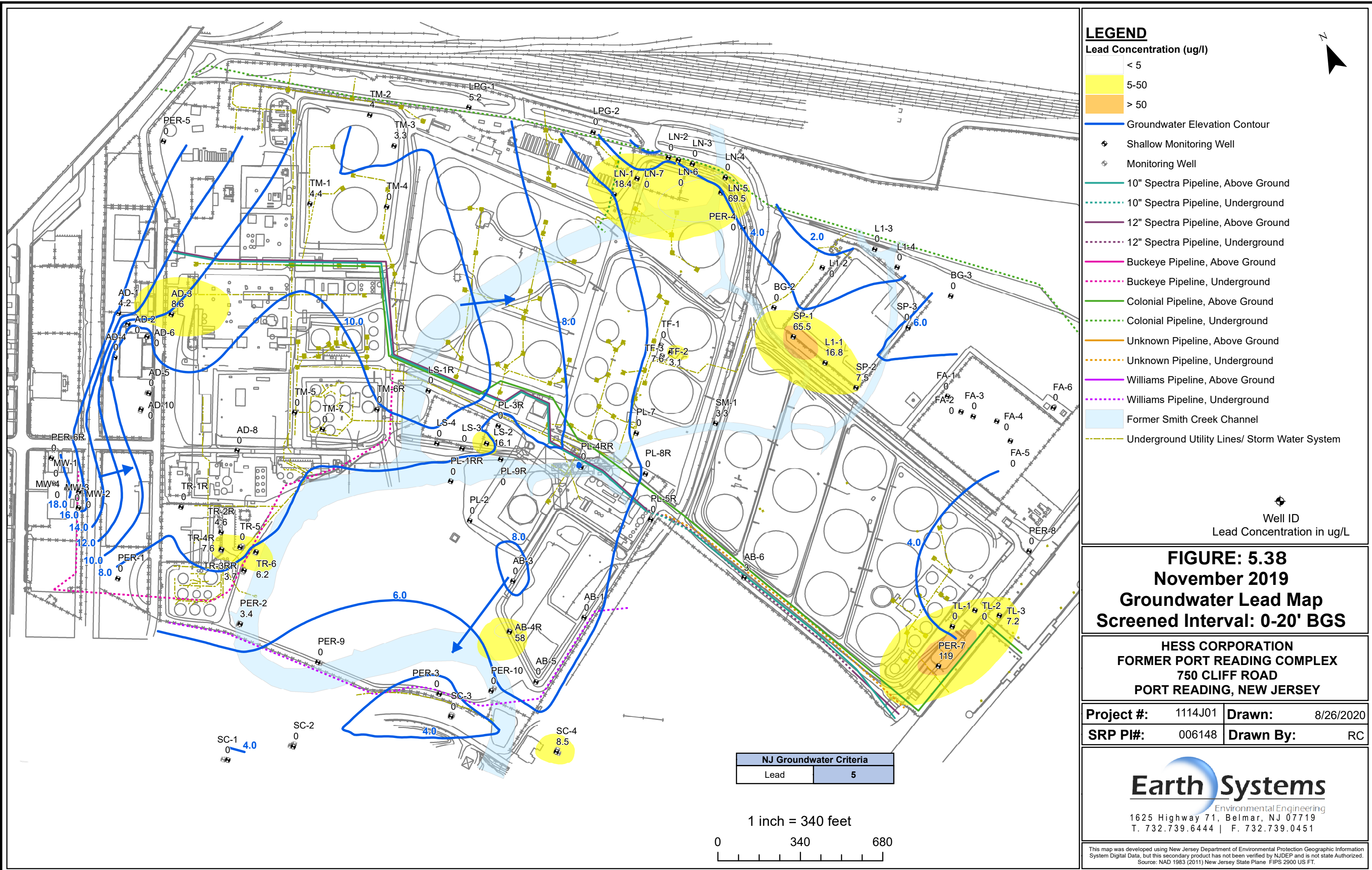
**Earth Systems**  
Environmental Engineering  
1625 Highway 71, Belmar, NJ 07719  
T. 732.739.6444 | F. 732.739.0451

This map was developed using New Jersey Department of Environmental Protection Geographic Information System Digital Data, but this secondary product has not been verified by NJDEP and is not state Authorized. Source: NAD 1983 (2011) New Jersey State Plane FIPS 2900 US FT.

NJ Groundwater Criteria	
Arsenic	3

1 inch = 209 feet





**LEGEND**  
Lead Concentration (ug/l)  

< 5

5-50

> 50

Groundwater Elevation Contour

Shallow Monitoring Well

Monitoring Well

10" Spectra Pipeline, Above Ground

10" Spectra Pipeline, Underground

12" Spectra Pipeline, Above Ground

12" Spectra Pipeline, Underground

Buckeye Pipeline, Above Ground

Buckeye Pipeline, Underground

Colonial Pipeline, Above Ground

Colonial Pipeline, Underground

Unknown Pipeline, Above Ground

Unknown Pipeline, Underground

Williams Pipeline, Above Ground

Williams Pipeline, Underground

Former Smith Creek Channel

Underground Utility Lines/ Storm Water System

Well ID

Lead Concentration in ug/L

**FIGURE: 5.38**  
**November 2019**  
**Groundwater Lead Map**  
**Screened Interval: 0-20' BGS**

**HESS CORPORATION**  
**FORMER PORT READING COMPLEX**  
**750 CLIFF ROAD**  
**PORT READING, NEW JERSEY**

Project #:	1114J01	Drawn:	8/26/2020
SRP PI#:	006148	Drawn By:	RC

**Earth Systems**  
Environmental Engineering  
1625 Highway 71, Belmar, NJ 07719  
T. 732.739.6444 | F. 732.739.0451

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Hess Corporation Former Port Reading Complex  
750 Cliff Road  
Port Reading NJ  
Table 5.1  
Groundwater Analytical Results  
AOC 3 - No. 1 Landfarm

Client Sample ID:		NJ Groundwater Criteria	SP-1	SP-2	SP-3
Lab Sample ID:			JC98421-1	JC98421-2	JC98421-3
Date Sampled:			11/11/2019	11/11/2019	11/11/2019
Matrix:			Ground Water	Ground Water	Ground Water
MS Volatiles (SW846 8260C)					
Acetone	ug/l	6000	ND (6.0)	15	ND (6.0)
Benzene	ug/l	1	ND (0.43)	ND (0.43)	ND (0.43)
Bromochloromethane	ug/l	-	ND (0.48)	ND (0.48)	ND (0.48)
Bromodichloromethane	ug/l	1	ND (0.58)	ND (0.58)	ND (0.58)
Bromoform	ug/l	4	ND (0.63)	ND (0.63)	ND (0.63)
Bromomethane	ug/l	10	ND (1.6)	ND (1.6)	ND (1.6)
2-Butanone (MEK)	ug/l	300	ND (6.9)	ND (6.9)	ND (6.9)
Carbon disulfide	ug/l	700	ND (0.95)	ND (0.95)	ND (0.95)
Carbon tetrachloride	ug/l	1	ND (0.55)	ND (0.55)	ND (0.55)
Chlorobenzene	ug/l	50	ND (0.56)	ND (0.56)	ND (0.56)
Chloroethane	ug/l	-	ND (0.73)	ND (0.73)	ND (0.73)
Chloroform	ug/l	70	ND (0.50)	ND (0.50)	ND (0.50)
Chloromethane	ug/l	-	ND (0.76)	ND (0.76)	ND (0.76)
Cyclohexane	ug/l	-	ND (0.78)	ND (0.78)	ND (0.78)
1,2-Dibromo-3-chloropropane	ug/l	0.02	ND (1.2)	ND (1.2)	ND (1.2)
Dibromochloromethane	ug/l	1	ND (0.56)	ND (0.56)	ND (0.56)
1,2-Dibromoethane	ug/l	0.03	ND (0.48)	ND (0.48)	ND (0.48)
1,2-Dichlorobenzene	ug/l	600	ND (0.53)	ND (0.53)	ND (0.53)
1,3-Dichlorobenzene	ug/l	600	ND (0.54)	ND (0.54)	ND (0.54)
1,4-Dichlorobenzene	ug/l	75	ND (0.51)	ND (0.51)	ND (0.51)
Dichlorodifluoromethane	ug/l	1000	ND (1.4)	ND (1.4)	ND (1.4)
1,1-Dichloroethane	ug/l	50	ND (0.57)	ND (0.57)	ND (0.57)
1,2-Dichloroethane	ug/l	2	ND (0.60)	ND (0.60)	ND (0.60)
1,1-Dichloroethene	ug/l	1	ND (0.59)	ND (0.59)	ND (0.59)
cis-1,2-Dichloroethene	ug/l	70	ND (0.51)	1.3	ND (0.51)
trans-1,2-Dichloroethene	ug/l	100	ND (0.54)	ND (0.54)	ND (0.54)
1,2-Dichloropropane	ug/l	1	ND (0.51)	ND (0.51)	ND (0.51)
cis-1,3-Dichloropropene	ug/l	-	ND (0.47)	ND (0.47)	ND (0.47)
trans-1,3-Dichloropropene	ug/l	-	ND (0.43)	ND (0.43)	ND (0.43)
Ethylbenzene	ug/l	700	ND (0.60)	ND (0.60)	ND (0.60)
Freon 113	ug/l	20000	ND (1.9)	ND (1.9)	ND (1.9)
2-Hexanone	ug/l	40	ND (2.0)	ND (2.0)	ND (2.0)
Isopropylbenzene	ug/l	700	ND (0.65)	ND (0.65)	ND (0.65)
Methyl Acetate	ug/l	7000	ND (0.80)	ND (0.80)	ND (0.80)
Methylcyclohexane	ug/l	-	ND (0.60)	ND (0.60)	ND (0.60)
Methyl Tert Butyl Ether	ug/l	70	ND (0.51)	ND (0.51)	ND (0.51)
4-Methyl-2-pentanone(MIBK)	ug/l	-	ND (1.9)	ND (1.9)	ND (1.9)
Methylene chloride	ug/l	3	ND (1.0)	ND (1.0)	ND (1.0)
Styrene	ug/l	100	ND (0.70)	ND (0.70)	ND (0.70)
Tert Butyl Alcohol	ug/l	100	ND (5.8)	ND (5.8)	ND (5.8)
1,1,2,2-Tetrachloroethane	ug/l	1	ND (0.65)	ND (0.65)	ND (0.65)
Tetrachloroethene	ug/l	1	ND (0.90)	ND (0.90)	ND (0.90)
Toluene	ug/l	600	ND (0.53)	ND (0.53)	ND (0.53)
1,2,3-Trichlorobenzene	ug/l	-	ND (0.50)	ND (0.50)	ND (0.50)
1,2,4-Trichlorobenzene	ug/l	9	ND (0.50)	ND (0.50)	ND (0.50)
1,1,1-Trichloroethane	ug/l	30	ND (0.54)	ND (0.54)	ND (0.54)
1,1,2-Trichloroethane	ug/l	3	ND (0.53)	ND (0.53)	ND (0.53)
Trichloroethene	ug/l	1	ND (0.53)	ND (0.53)	ND (0.53)
Trichlorofluoromethane	ug/l	2000	ND (0.84)	ND (0.84)	ND (0.84)
Vinyl chloride	ug/l	1	ND (0.79)	ND (0.79)	ND (0.79)
m,p-Xylene	ug/l	-	ND (0.78)	ND (0.78)	ND (0.78)
o-Xylene	ug/l	-	ND (0.59)	ND (0.59)	ND (0.59)
Xylene (total)	ug/l	1000	ND (0.59)	ND (0.59)	ND (0.59)
MS Volatile TIC					
Total TIC, Volatile	ug/l	-	0	0	0
MS Semi-volatiles (SW846 8270D)					
Acenaphthene	ug/l	400	ND (0.19)	ND (0.21)	ND (0.18)
Acenaphthylene	ug/l	-	ND (0.14)	ND (0.15)	ND (0.13)

Hess Corporation Former Port Reading Complex  
750 Cliff Road  
Port Reading NJ  
Table 5.1  
Groundwater Analytical Results  
AOC 3 - No. 1 Landfarm

Client Sample ID:		NJ Groundwater Criteria	SP-1	SP-2	SP-3
Lab Sample ID:			JC98421-1	JC98421-2	JC98421-3
Date Sampled:			11/11/2019	11/11/2019	11/11/2019
Matrix:			Ground Water	Ground Water	Ground Water
Acetophenone	ug/l	700	ND (0.21)	ND (0.23)	ND (0.20)
Anthracene	ug/l	2000	ND (0.22)	ND (0.23)	ND (0.20)
Atrazine	ug/l	3	ND (0.46)	ND (0.50)	ND (0.43)
Benzaldehyde	ug/l	-	ND (0.29)	ND (0.32)	ND (0.28)
Benzo(g,h,i)perylene	ug/l	-	ND (0.35)	ND (0.38)	ND (0.32)
4-Bromophenyl phenyl ether	ug/l	-	ND (0.41)	ND (0.45)	ND (0.38)
Butyl benzyl phthalate	ug/l	100	ND (0.47)	ND (0.51)	ND (0.44)
1,1'-Biphenyl	ug/l	400	ND (0.22)	ND (0.24)	ND (0.20)
2-Chloronaphthalene	ug/l	600	ND (0.24)	ND (0.26)	ND (0.22)
4-Chloroaniline	ug/l	30	ND (0.35)	ND (0.38)	ND (0.32)
Carbazole	ug/l	-	ND (0.23)	ND (0.25)	ND (0.22)
Caprolactam	ug/l	4000	ND (0.66)	ND (0.72)	ND (0.62)
Chrysene	ug/l	5	ND (0.18)	ND (0.20)	ND (0.17)
bis(2-Chloroethoxy)methane	ug/l	-	ND (0.28)	ND (0.31)	ND (0.26)
bis(2-Chloroethyl)ether	ug/l	7	ND (0.25)	ND (0.28)	ND (0.24)
2,2'-Oxybis(1-chloropropane)	ug/l	300	ND (0.41)	ND (0.45)	ND (0.38)
4-Chlorophenyl phenyl ether	ug/l	-	ND (0.37)	ND (0.41)	ND (0.35)
2,4-Dinitrotoluene	ug/l	-	ND (0.56)	ND (0.61)	ND (0.53)
2,6-Dinitrotoluene	ug/l	-	ND (0.49)	ND (0.53)	ND (0.45)
3,3'-Dichlorobenzidine	ug/l	30	ND (0.52)	ND (0.56)	ND (0.48)
1,4-Dioxane	ug/l	0.4	-	-	-
Dibenzofuran	ug/l	-	ND (0.22)	ND (0.24)	ND (0.21)
Di-n-butyl phthalate	ug/l	700	ND (0.51)	ND (0.55)	ND (0.47)
Di-n-octyl phthalate	ug/l	100	ND (0.24)	ND (0.26)	ND (0.22)
Diethyl phthalate	ug/l	6000	ND (0.27)	ND (0.29)	ND (0.25)
Dimethyl phthalate	ug/l	-	ND (0.22)	ND (0.24)	ND (0.21)
bis(2-Ethylhexyl)phthalate	ug/l	3	ND (1.7)	ND (1.8)	ND (1.6)
Fluoranthene	ug/l	300	ND (0.17)	ND (0.19)	ND (0.16)
Fluorene	ug/l	300	ND (0.17)	ND (0.19)	ND (0.16)
Hexachlorocyclopentadiene	ug/l	40	ND (2.8)	ND (3.1)	ND (2.6)
Hexachloroethane	ug/l	7	ND (0.40)	ND (0.43)	ND (0.37)
Isophorone	ug/l	40	ND (0.28)	ND (0.31)	ND (0.26)
2-Methylnaphthalene	ug/l	30	ND (0.21)	ND (0.23)	ND (0.20)
2-Nitroaniline	ug/l	-	ND (0.28)	ND (0.31)	ND (0.26)
3-Nitroaniline	ug/l	-	ND (0.39)	ND (0.43)	ND (0.37)
4-Nitroaniline	ug/l	-	ND (0.45)	ND (0.49)	ND (0.42)
Naphthalene	ug/l	300	ND (0.24)	0.33 J	ND (0.22)
Nitrobenzene	ug/l	6	ND (0.66)	ND (0.71)	ND (0.61)
N-Nitroso-di-n-propylamine	ug/l	10	ND (0.49)	ND (0.53)	ND (0.46)
N-Nitrosodiphenylamine	ug/l	10	ND (0.23)	ND (0.25)	ND (0.21)
Phenanthrene	ug/l	-	ND (0.18)	ND (0.19)	ND (0.17)
Pyrene	ug/l	200	ND (0.22)	ND (0.24)	ND (0.21)
1,2,4,5-Tetrachlorobenzene	ug/l	-	ND (0.38)	ND (0.41)	ND (0.35)
<b>MS Semi-volatiles (SW846 8270D BY SIM)</b>					
Benzo(a)anthracene	ug/l	0.1	ND (0.023) <sup>b</sup>	ND (0.025) <sup>b</sup>	ND (0.022) <sup>b</sup>
Benzo(a)pyrene	ug/l	0.1	ND (0.034)	ND (0.037)	ND (0.032)
Benzo(b)fluoranthene	ug/l	0.2	ND (0.044)	ND (0.048)	ND (0.041)
Benzo(k)fluoranthene	ug/l	0.5	ND (0.051)	ND (0.056)	ND (0.048)
Dibenzo(a,h)anthracene	ug/l	0.3	ND (0.051)	ND (0.056)	ND (0.048)
Hexachlorobenzene	ug/l	0.02	0.0178	0.0183	ND (0.011)
Hexachlorobutadiene	ug/l	1	ND (0.051)	ND (0.056)	ND (0.048)
Indeno(1,2,3-cd)pyrene	ug/l	0.2	ND (0.051)	ND (0.056)	ND (0.048)
1,4-Dioxane	ug/l	0.4	ND (0.051)	ND (0.056)	ND (0.048)
<b>MS Semi-volatile TIC</b>					
Total TIC, Semi-Volatile	ug/l	-	0	6.6 J	23 J
<b>Metals Analysis</b>					
Aluminum	ug/l	200	14300	3220	<200
Antimony	ug/l	6	<6.0	<6.0	<6.0
Arsenic	ug/l	3	16	7.2	13.4

Hess Corporation Former Port Reading Complex  
750 Cliff Road  
Port Reading NJ  
Table 5.1  
Groundwater Analytical Results  
AOC 3 - No. 1 Landfarm

Client Sample ID:		NJ Groundwater Criteria	SP-1	SP-2	SP-3
Lab Sample ID:			JC98421-1	JC98421-2	JC98421-3
Date Sampled:			11/11/2019	11/11/2019	11/11/2019
Matrix:			Ground Water	Ground Water	Ground Water
Barium	ug/l	6000	<200	<200	<200
Beryllium	ug/l	1	<1.0	<1.0	<1.0
Cadmium	ug/l	4	<3.0	<3.0	<3.0
Calcium	ug/l	-	<5000	5330	21900
Chromium	ug/l	70	33.3	<10	<10
Cobalt	ug/l	100	<50	<50	<50
Copper	ug/l	1300	53	13.5	<10
Iron	ug/l	300	<b>34100</b>	<b>23700</b>	<b>44400</b>
Lead	ug/l	5	<b>65.5</b>	<b>7.5</b>	<3.0
Magnesium	ug/l	-	<5000	<5000	10900
Manganese	ug/l	50	<b>224</b>	<b>105</b>	<b>570</b>
Mercury	ug/l	2	0.97	0.55	0.49
Nickel	ug/l	100	23.6	<10	<10
Potassium	ug/l	-	<10000	<10000	<10000
Selenium	ug/l	40	<10	<10	<10
Silver	ug/l	40	<10	<10	<10
Sodium	ug/l	50000	18500	38800	10700
Thallium	ug/l	2	<1.0	<1.0	<1.0
Vanadium	ug/l	-	<50	<50	<50
Zinc	ug/l	2000	108	51.8	<20
<b>General Chemistry</b>					
Nitrogen, Ammonia	ug/l	3000	<200	<200	510

Footnotes:

- a Associated CCV outside of control limits low.
- b Associated CCV outside of control limits high, sample was ND.
- c This compound in BS is outside in house QC limits bias high.
- d Associated CCV outside of control limits high, sample was ND.  
This compound in BS is outside in house QC limits bias high.
- e Associated CCV and BS outside of control limits high, sample was ND.
- f This compound in BS is outside in house QC limits bias high.  
Associated CCV outside of control limits high, sample was ND.
- g Associated CCV,BS,BSD outside of control limits high, sample was ND.
- h Associated CCV outside of control limits low. Low-level verification was analyzed to demonstrate system suitability to detect affected analytes. Sample was ND.
- i Estimated value, due to corresponding failure in the batch associated CCV.
- j Associated CCV outside of control limits high.  
Estimated value, due to corresponding failure in the batch associated CCV.
- k Associated CCV outside of control limits low. Low-level verification was analyzed to demonstrate system suitability to detect affected analytes. Estimated value, due to corresponding failure in the batch associated CCV.
- l Result confirmed by reextraction outside of the holding time.
- m Sample reextracted outside of the holding time for confirmation.
- n There is no sample left to reextract for confirmation.
- o Elevated sample detection limit due to difficult sample matrix.
- p Elevated detection limit due to dilution required for high interfering element.
- q Elevated detection limit due to dilution required for matrix interference.

Hess Corporation Former Port Reading Complex  
750 Cliff Road  
Port Reading NJ  
Table 5.1  
AOC 5 - Aeration Basins  
Groundwater Analytical Results

Client Sample ID:		NJ Groundwater Criteria	AB-1	AB-2R	AB-3	AB-4R	AB-4D	AB-5
Lab Sample ID:			JC97978-5	JC98148-11	JC97978-3	JC97978-1	JC97978-2	JC97978-4
Date Sampled:			11/4/2019	11/6/2019	11/4/2019	11/4/2019	11/4/2019	11/4/2019
Matrix:			Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water

**MS Volatiles (SW846 8260C)**

Acetone	ug/l	6000	ND (6.0)	ND (6.0)	ND (6.0)	ND (6.0)	ND (6.0)	ND (6.0)
Benzene	ug/l	1	ND (0.43)	ND (0.43)	ND (0.43)	ND (0.43)	ND (0.43)	ND (0.43)
Bromochloromethane	ug/l	-	ND (0.48)	ND (0.48)	ND (0.48)	ND (0.48)	ND (0.48)	ND (0.48)
Bromodichloromethane	ug/l	1	ND (0.58)	ND (0.58)	ND (0.58)	ND (0.58)	ND (0.58)	ND (0.58)
Bromoform	ug/l	4	ND (0.63)	ND (0.63)	ND (0.63)	ND (0.63)	ND (0.63)	ND (0.63)
Bromomethane	ug/l	10	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)
2-Butanone (MEK)	ug/l	300	ND (6.9)	ND (6.9)	ND (6.9)	ND (6.9)	ND (6.9)	ND (6.9)
Carbon disulfide	ug/l	700	ND (0.95)	ND (0.95)	ND (0.95)	ND (0.95)	ND (0.95)	ND (0.95)
Carbon tetrachloride	ug/l	1	ND (0.55)	ND (0.55)	ND (0.55)	ND (0.55)	ND (0.55)	ND (0.55)
Chlorobenzene	ug/l	50	ND (0.56)	ND (0.56)	ND (0.56)	ND (0.56)	ND (0.56)	ND (0.56)
Chloroethane	ug/l	-	ND (0.73)	ND (0.73)	ND (0.73)	ND (0.73)	ND (0.73)	ND (0.73)
Chloroform	ug/l	70	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
Chloromethane	ug/l	-	ND (0.76) <sup>a</sup>	ND (0.76)	ND (0.76) <sup>a</sup>	ND (0.76) <sup>a</sup>	ND (0.76) <sup>a</sup>	ND (0.76) <sup>a</sup>
Cyclohexane	ug/l	-	ND (0.78)	ND (0.78)	ND (0.78)	ND (0.78)	ND (0.78)	ND (0.78)
1,2-Dibromo-3-chloropropane	ug/l	0.02	ND (1.2)	ND (1.2)	ND (1.2)	ND (1.2)	ND (1.2)	ND (1.2)
Dibromochloromethane	ug/l	1	ND (0.56)	ND (0.56)	ND (0.56)	ND (0.56)	ND (0.56)	ND (0.56)
1,2-Dibromoethane	ug/l	0.03	ND (0.48)	ND (0.48)	ND (0.48)	ND (0.48)	ND (0.48)	ND (0.48)
1,2-Dichlorobenzene	ug/l	600	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)
1,3-Dichlorobenzene	ug/l	600	ND (0.54)	ND (0.54)	ND (0.54)	ND (0.54)	ND (0.54)	ND (0.54)
1,4-Dichlorobenzene	ug/l	75	ND (0.51)	ND (0.51)	ND (0.51)	ND (0.51)	ND (0.51)	ND (0.51)
Dichlorodifluoromethane	ug/l	1000	ND (1.4)	ND (1.4)	ND (1.4)	ND (1.4)	ND (1.4)	ND (1.4)
1,1-Dichloroethane	ug/l	50	ND (0.57)	ND (0.57)	ND (0.57)	ND (0.57)	ND (0.57)	ND (0.57)
1,2-Dichloroethane	ug/l	2	ND (0.60)	ND (0.60)	ND (0.60)	ND (0.60)	ND (0.60)	ND (0.60)
1,1-Dichloroethene	ug/l	1	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)
cis-1,2-Dichloroethene	ug/l	70	ND (0.51)	ND (0.51)	ND (0.51)	ND (0.51)	ND (0.51)	ND (0.51)
trans-1,2-Dichloroethene	ug/l	100	ND (0.54)	ND (0.54)	ND (0.54)	ND (0.54)	ND (0.54)	ND (0.54)
1,2-Dichloropropane	ug/l	1	ND (0.51)	ND (0.51)	ND (0.51)	ND (0.51)	ND (0.51)	ND (0.51)
cis-1,3-Dichloropropene	ug/l	-	ND (0.47)	ND (0.47)	ND (0.47)	ND (0.47)	ND (0.47)	ND (0.47)
trans-1,3-Dichloropropene	ug/l	-	ND (0.43)	ND (0.43)	ND (0.43)	ND (0.43)	ND (0.43)	ND (0.43)
Ethylbenzene	ug/l	700	ND (0.60)	ND (0.60)	ND (0.60)	ND (0.60)	ND (0.60)	ND (0.60)
Freon 113	ug/l	20000	ND (1.9)	ND (1.9)	ND (1.9)	ND (1.9)	ND (1.9)	ND (1.9)
2-Hexanone	ug/l	40	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)
Isopropylbenzene	ug/l	700	ND (0.65)	ND (0.65)	ND (0.65)	ND (0.65)	ND (0.65)	ND (0.65)
Methyl Acetate	ug/l	7000	ND (0.80)	ND (0.80) <sup>a</sup>	ND (0.80)	ND (0.80)	ND (0.80)	ND (0.80)
Methylcyclohexane	ug/l	-	ND (0.60)	ND (0.60)	ND (0.60)	ND (0.60)	ND (0.60)	ND (0.60)
Methyl Tert Butyl Ether	ug/l	70	ND (0.51)	ND (0.51)	ND (0.51)	ND (0.51)	4.9	ND (0.51)
4-Methyl-2-pentanone(MIBK)	ug/l	-	ND (1.9)	ND (1.9)	ND (1.9)	ND (1.9)	ND (1.9)	ND (1.9)
Methylene chloride	ug/l	3	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Styrene	ug/l	100	ND (0.70)	ND (0.70)	ND (0.70)	ND (0.70)	ND (0.70)	ND (0.70)
Tert Butyl Alcohol	ug/l	100	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	46.9	ND (5.8)
1,1,2,2-Tetrachloroethane	ug/l	1	ND (0.65)	ND (0.65)	ND (0.65)	ND (0.65)	ND (0.65)	ND (0.65)
Tetrachloroethene	ug/l	1	ND (0.90)	ND (0.90)	ND (0.90)	ND (0.90)	ND (0.90)	ND (0.90)
Toluene	ug/l	600	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)
1,2,3-Trichlorobenzene	ug/l	-	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
1,2,4-Trichlorobenzene	ug/l	9	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
1,1,1-Trichloroethane	ug/l	30	ND (0.54)	ND (0.54)	ND (0.54)	ND (0.54)	ND (0.54)	ND (0.54)
1,1,2-Trichloroethane	ug/l	3	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)
Trichloroethene	ug/l	1	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)
Trichlorofluoromethane	ug/l	2000	ND (0.84)	ND (0.84)	ND (0.84)	ND (0.84)	ND (0.84)	ND (0.84)
Vinyl chloride	ug/l	1	ND (0.79)	ND (0.79)	ND (0.79)	ND (0.79)	ND (0.79)	ND (0.79)
m,p-Xylene	ug/l	-	ND (0.78)	ND (0.78)	ND (0.78)	ND (0.78)	ND (0.78)	ND (0.78)
o-Xylene	ug/l	-	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)
Xylene (total)	ug/l	1000	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)

**MS Volatile TIC**

Total TIC, Volatile	ug/l	-	0	6.7 J	0	0	139 J	0
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Hess Corporation Former Port Reading Complex  
750 Cliff Road  
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Table 5.1  
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Groundwater Analytical Results

Client Sample ID:		NJ Groundwater Criteria	AB-1	AB-2R	AB-3	AB-4R	AB-4D	AB-5
Lab Sample ID:			JC97978-5	JC98148-11	JC97978-3	JC97978-1	JC97978-2	JC97978-4
Date Sampled:			11/4/2019	11/6/2019	11/4/2019	11/4/2019	11/4/2019	11/4/2019
Matrix:			Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
MS Semi-volatiles (SW846 8270D)								

Acenaphthene	ug/l	400	ND (0.19)	ND (0.18)	ND (0.19)	0.91 J	0.37 J	ND (0.19)
Acenaphthylene	ug/l	-	ND (0.13)	ND (0.13)	ND (0.14)	ND (0.13)	ND (0.13)	ND (0.13)
Acetophenone	ug/l	700	ND (0.20)	ND (0.20)	ND (0.21)	ND (0.20)	ND (0.20)	ND (0.20)
Anthracene	ug/l	2000	ND (0.21)	ND (0.20)	ND (0.21)	ND (0.20)	ND (0.20)	ND (0.20)
Atrazine	ug/l	3	ND (0.44) <sup>b</sup>	ND (0.43)	ND (0.45) <sup>b</sup>	ND (0.43) <sup>b</sup>	ND (0.43) <sup>b</sup>	ND (0.43) <sup>b</sup>
Benzaldehyde	ug/l	-	ND (0.28)	ND (0.28)	ND (0.29)	ND (0.28)	ND (0.28)	ND (0.28)
Benzo(g,h,i)perylene	ug/l	-	ND (0.33)	ND (0.32)	ND (0.34)	ND (0.32)	ND (0.32)	ND (0.33)
4-Bromophenyl phenyl ether	ug/l	-	ND (0.40)	ND (0.38)	ND (0.40)	ND (0.38)	ND (0.38)	ND (0.39)
Butyl benzyl phthalate	ug/l	100	ND (0.45)	ND (0.44)	ND (0.46)	ND (0.44)	ND (0.44)	ND (0.44)
1,1'-Biphenyl	ug/l	400	ND (0.21)	ND (0.20)	ND (0.21)	ND (0.20)	ND (0.20)	ND (0.21)
2-Chloronaphthalene	ug/l	600	ND (0.23)	ND (0.22)	ND (0.24)	ND (0.22)	ND (0.22)	ND (0.23)
4-Chloroaniline	ug/l	30	ND (0.33)	ND (0.32)	ND (0.34)	ND (0.32)	ND (0.32)	ND (0.33)
Carbazole	ug/l	-	ND (0.22)	ND (0.22)	ND (0.23)	ND (0.22)	ND (0.22)	ND (0.22)
Caprolactam	ug/l	4000	ND (0.64)	ND (0.62) <sup>b</sup>	ND (0.65)	ND (0.62)	ND (0.62)	ND (0.63)
Chrysene	ug/l	5	ND (0.17)	ND (0.17)	ND (0.18)	ND (0.17)	ND (0.17)	ND (0.17)
bis(2-Chloroethoxy)methane	ug/l	-	ND (0.27)	ND (0.26)	ND (0.28)	ND (0.26)	ND (0.26)	ND (0.27)
bis(2-Chloroethyl)ether	ug/l	7	ND (0.24)	ND (0.24)	ND (0.25)	ND (0.24)	ND (0.24)	ND (0.24)
2,2'-Oxybis(1-chloropropane)	ug/l	300	ND (0.40)	ND (0.38)	ND (0.40)	ND (0.38)	ND (0.38)	ND (0.39)
4-Chlorophenyl phenyl ether	ug/l	-	ND (0.36)	ND (0.35)	ND (0.37)	ND (0.35)	ND (0.35)	ND (0.36)
2,4-Dinitrotoluene	ug/l	-	ND (0.54)	ND (0.53) <sup>h</sup>	ND (0.55)	ND (0.53)	ND (0.53)	ND (0.54)
2,6-Dinitrotoluene	ug/l	-	ND (0.47)	ND (0.45)	ND (0.48)	ND (0.45)	ND (0.45)	ND (0.46)
3,3'-Dichlorobenzidine	ug/l	30	ND (0.50)	ND (0.48)	ND (0.51)	ND (0.48)	ND (0.48)	ND (0.49)
1,4-Dioxane	ug/l	0.4	-	-	-	-	-	-
Dibenzofuran	ug/l	-	ND (0.22)	ND (0.21)	ND (0.22)	ND (0.21)	ND (0.21)	ND (0.21)
Di-n-butyl phthalate	ug/l	700	ND (0.49)	ND (0.47)	ND (0.50)	ND (0.47)	ND (0.47)	ND (0.48)
Di-n-octyl phthalate	ug/l	100	ND (0.23)	ND (0.22)	ND (0.23)	ND (0.22)	ND (0.22)	ND (0.23)
Diethyl phthalate	ug/l	6000	ND (0.26)	ND (0.25)	ND (0.26)	ND (0.25)	ND (0.25)	ND (0.25)
Dimethyl phthalate	ug/l	-	ND (0.21)	ND (0.21)	ND (0.22)	ND (0.21)	ND (0.21)	ND (0.21)
bis(2-Ethylhexyl)phthalate	ug/l	3	ND (1.6)	ND (1.6)	ND (1.7)	ND (1.6)	ND (1.6)	ND (1.6)
Fluoranthene	ug/l	300	ND (0.17)	ND (0.16)	0.19 J	0.20 J	ND (0.16)	ND (0.17)
Fluorene	ug/l	300	ND (0.17)	ND (0.16)	ND (0.17)	ND (0.16)	ND (0.16)	ND (0.17)
Hexachlorocyclopentadiene	ug/l	40	ND (2.7)	ND (2.6)	ND (2.8)	ND (2.6)	ND (2.6)	ND (2.7)
Hexachloroethane	ug/l	7	ND (0.38)	ND (0.37)	ND (0.39)	ND (0.37)	ND (0.37)	ND (0.38)
Isophorone	ug/l	40	ND (0.27)	ND (0.26)	ND (0.28)	ND (0.26)	ND (0.26)	ND (0.27)
2-Methylnaphthalene	ug/l	30	ND (0.21)	ND (0.20)	ND (0.21)	ND (0.20)	ND (0.20)	ND (0.20)
2-Nitroaniline	ug/l	-	ND (0.27)	ND (0.26)	ND (0.28)	ND (0.26)	ND (0.26)	ND (0.27)
3-Nitroaniline	ug/l	-	ND (0.38)	ND (0.37)	ND (0.39)	ND (0.37)	ND (0.37)	ND (0.38)
4-Nitroaniline	ug/l	-	ND (0.43)	ND (0.42)	ND (0.44)	ND (0.42)	ND (0.42)	ND (0.43)
Naphthalene	ug/l	300	ND (0.23)	ND (0.22)	ND (0.23)	ND (0.22)	ND (0.22)	ND (0.23)
Nitrobenzene	ug/l	6	ND (0.63)	ND (0.61)	ND (0.64)	ND (0.61)	ND (0.61)	ND (0.62)
N-Nitroso-di-n-propylamine	ug/l	10	ND (0.47)	ND (0.46)	ND (0.48)	ND (0.46)	ND (0.46)	ND (0.47)
N-Nitrosodiphenylamine	ug/l	10	ND (0.22)	ND (0.21)	ND (0.22)	ND (0.21)	ND (0.21)	ND (0.22)
Phenanthrene	ug/l	-	ND (0.17)	ND (0.17)	ND (0.18)	ND (0.17)	ND (0.17)	ND (0.17)
Pyrene	ug/l	200	ND (0.21)	ND (0.21) <sup>h</sup>	ND (0.22)	ND (0.21)	ND (0.21)	ND (0.21)
1,2,4,5-Tetrachlorobenzene	ug/l	-	ND (0.36)	ND (0.35)	ND (0.37)	ND (0.35)	ND (0.35)	ND (0.36)

**MS Semi-volatiles (SW846 8270D BY SIM)**

Benzo(a)anthracene	ug/l	0.1	ND (0.022)	ND (0.022)	ND (0.023)	ND (0.022)	ND (0.022)	ND (0.022)
Benzo(a)pyrene	ug/l	0.1	ND (0.033)	ND (0.032)	ND (0.033)	ND (0.032)	ND (0.032)	ND (0.032)
Benzo(b)fluoranthene	ug/l	0.2	ND (0.043)	ND (0.041)	ND (0.043)	ND (0.041)	ND (0.041)	ND (0.042)
Benzo(k)fluoranthene	ug/l	0.5	ND (0.049)	ND (0.048)	ND (0.050)	ND (0.048)	ND (0.048)	ND (0.049)
Dibenzo(a,h)anthracene	ug/l	0.3	ND (0.049)	ND (0.048)	ND (0.050)	ND (0.048)	ND (0.048)	ND (0.049)
Hexachlorobenzene	ug/l	0.02	ND (0.011) <sup>h</sup>	ND (0.011)	ND (0.011) <sup>d</sup>	0.0176	ND (0.011) <sup>h</sup>	ND (0.011) <sup>h</sup>
Hexachlorobutadiene	ug/l	1	ND (0.049)	ND (0.048)	ND (0.050)	ND (0.048)	ND (0.048)	ND (0.049)
Indeno(1,2,3-cd)pyrene	ug/l	0.2	ND (0.049)	ND (0.048)	ND (0.050)	ND (0.048)	ND (0.048)	ND (0.049)
1,4-Dioxane	ug/l	0.4	ND (0.049)	0.0554 J	0.0780 J	ND (0.048)	<b>0.936</b>	ND (0.049)

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Lab Sample ID:			JC97978-5	JC98148-11	JC97978-3	JC97978-1	JC97978-2	JC97978-4
Date Sampled:			11/4/2019	11/6/2019	11/4/2019	11/4/2019	11/4/2019	11/4/2019
Matrix:			Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
MS Semi-volatile TIC								

Total TIC, Semi-Volatile	ug/l	-	0	0	0	4.5 J	133.3 J	29 J
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**Metals Analysis**

Aluminum	ug/l	200	479	<200	47400 <sup>f</sup>	1270	<200	<200
Antimony	ug/l	6	<6.0	<6.0	<30 <sup>f</sup>	<6.0	<6.0	<6.0
Arsenic	ug/l	3	6.4	<1.0	36.6	1.5	2.5	7.8
Barium	ug/l	6000	<200	308	<1000 <sup>f</sup>	<200	<200	<200
Beryllium	ug/l	1	<1.0	<1.0	<5.0 <sup>f</sup>	1	<1.0	<1.0
Cadmium	ug/l	4	<3.0	<3.0	<15 <sup>f</sup>	<3.0	<3.0	<3.0
Calcium	ug/l	-	33500	142000	<25000 <sup>f</sup>	52600	189000	25600
Chromium	ug/l	70	<10	<10	137 <sup>f</sup>	<10	<10	<10
Cobalt	ug/l	100	<50	<50	<250 <sup>f</sup>	<50	<50	<50
Copper	ug/l	1300	<10	<10	63.5 <sup>f</sup>	<10	<10	<10
Iron	ug/l	300	1010	812	73300 <sup>f</sup>	30300	<100	2820
Lead	ug/l	5	<3.0	<3.0	58.0 <sup>f</sup>	3	<15 <sup>p</sup>	3
Magnesium	ug/l	-	<5000	57200	<25000 <sup>f</sup>	8410	415000	<5000
Manganese	ug/l	50	21.1	241	153 <sup>f</sup>	307	<15	33.2
Mercury	ug/l	2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Nickel	ug/l	100	<10	<10	<50 <sup>f</sup>	33	<10	<10
Potassium	ug/l	-	17800	19900	<50000 <sup>f</sup>	18800	312000	<10000
Selenium	ug/l	40	<10	<10	<50 <sup>f</sup>	<10	<50 <sup>p</sup>	<10
Silver	ug/l	40	<10	<10	<50 <sup>f</sup>	<10	22.9	<10
Sodium	ug/l	50000	32500	401000	<50000 <sup>f</sup>	51600	3630000	<10000
Thallium	ug/l	2	<1.0	<1.0	<5.0	<1.0	<2.5	<1.0
Vanadium	ug/l	-	<50	<50	<250 <sup>f</sup>	<50	<50	<50
Zinc	ug/l	2000	<20	<20	187 <sup>f</sup>	223	<20	<20

**General Chemistry**

Nitrogen, Ammonia	ug/l	3000	<200	300	<200	<200	17700	500
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Footnotes:

- a Associated CCV outside of control limits low.
- b Associated CCV outside of control limits high, sample was ND.
- c This compound in BS is outside in house QC limits bias high.
- d Associated CCV outside of control limits high, sample was ND.  
This compound in BS is outside in house QC limits bias high.
- e Associated CCV and BS outside of control limits high, sample was ND.
- f This compound in BS is outside in house QC limits bias high.  
Associated CCV outside of control limits high, sample was ND.
- g Associated CCV,BS,BSD outside of control limits high, sample was ND.
- h Associated CCV outside of control limits low. Low-level verification was analyzed to demonstrate system suitability to detect affected analytes. Sample was ND.
- i Estimated value, due to corresponding failure in the batch associated CCV.
- j Associated CCV outside of control limits high.  
Estimated value, due to corresponding failure in the batch associated CCV.
- k Associated CCV outside of control limits low. Low-level verification was analyzed to demonstrate system suitability to detect affected analytes. Estimated value, due to corresponding failure in the batch associated CCV.
- l Result confirmed by reextraction outside of the holding time.
- m Sample reextracted outside of the holding time for confirmation.
- n There is no sample left to reextract for confirmation.
- o Elevated sample detection limit due to difficult sample matrix.
- p Elevated detection limit due to dilution required for high interfering element.
- q Elevated detection limit due to dilution required for matrix interference.

AOC 10 - Truck Loading Rack  
Groundwater Analytical Results

MS Volatiles (SW846 8260C)

## MS Semi-volatiles (SW846 8270D)

[illegible]

Hess Corporation Former Port Reading Complex  
750 Cliff Road  
Port Reading NJ  
Table 5.1  
AOC 10 - Truck Loading Rack  
Groundwater Analytical Results

Client Sample ID:		TR-1R	TR-2R	TR-3RR	TR-3D	TR-3DD	TR-4R	TR-4D	TR-4DD	TR-5	TR-5D	TR-5DD	TR-6	TR-6D	PER-1
Lab Sample ID:		JC98455-10	JC98455-11	JC98421-12	JC98421-14	JC98421-13	JC97978-10	JC97978-9	JC97978-8	JC98258-13	JC98258-12	JC98258-11	JC98258-10	JC98421-15	JC98421-10
Date Sampled:		11/12/2019	11/12/2019	11/11/2019	11/11/2019	11/11/2019	11/4/2019	11/4/2019	11/4/2019	11/8/2019	11/8/2019	11/8/2019	11/8/2019	11/11/2019	11/11/2019
Matrix:		Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water

MS Semi-volatiles (SW846 8270D BY SIM)

Benzo(a)anthracene	ug/l	0.1	ND (0.022)	1.12	ND (0.022) <sup>b</sup>	ND (0.022) <sup>b</sup>	ND (0.022) <sup>b</sup>	ND (0.022)	ND (0.022)	ND (0.022)	ND (0.022)	ND (0.022)	ND (0.022)	ND (0.023)	ND (0.022) <sup>b</sup>	ND (0.022)
Benzo(a)pyrene	ug/l	0.1	ND (0.032)	0.5	ND (0.032)	ND (0.032)	ND (0.032)	ND (0.032)	ND (0.032)	ND (0.032)	ND (0.032)	ND (0.032)	ND (0.032)	ND (0.033)	ND (0.032)	ND (0.032)
Benzo(b)fluoranthene	ug/l	0.2	ND (0.041)	0.683	ND (0.041)	ND (0.041)	ND (0.041)	0.0585	0.0664	ND (0.041)	ND (0.041)	ND (0.041)	ND (0.041)	ND (0.043)	ND (0.041)	ND (0.041)
Benzo(k)fluoranthene	ug/l	0.5	ND (0.048)	0.277	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.050)	ND (0.048)	ND (0.048)
Dibenzo(a,h)anthracene	ug/l	0.3	ND (0.048)	0.0798 J	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.050)	ND (0.048)	ND (0.048)
Hexachlorobenzene	ug/l	0.02	ND (0.011)	ND (0.011)	ND (0.011)	ND (0.011)	ND (0.011)	ND (0.011)	0.0163	0.0125 J	ND (0.011)	ND (0.011)	ND (0.011)	ND (0.011)	0.0748	0.0599 <sup>i</sup>
Hexachlorobutadiene	ug/l	1	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048) <sup>b</sup>	ND (0.048) <sup>b</sup>	ND (0.048) <sup>b</sup>	ND (0.050) <sup>b</sup>	ND (0.048)	ND (0.048)
Indeno(1,2,3-cd)pyrene	ug/l	0.2	ND (0.048)	0.213	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.050)	ND (0.048)	ND (0.048)
1,4-Dioxane	ug/l	0.4	0.156	ND (0.048)	0.216	1.23	0.687	0.637	0.0802 J	0.402	ND (0.048)	2.38	1.89	0.0661 J	0.588	0.378

Total TIC, Semi-Volatile	ug/l	-	4.4 J	307 J	19 J	57 J	5.3 J	152.3 J	201.8 J	0	779.5 J	15.3 J	0	141.6 J	4.4 J	5.4 J
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Metals Analysis

Aluminum	ug/l	200	205	1420	546	742	213	1210	4300	<200	537	6460	224	1410	421	212
Antimony	ug/l	6	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0	6	<6.0	<6.0	<6.0	<6.0
Arsenic	ug/l	3	1.3	1.3	2.2	2.2	<1.0	<1.0	8.3	<1.0	2.1	3.3	<1.0	<1.0	<1.0	1.8
Barium	ug/l	6000	<200	<200	215	<200	<200	250	<200	208	<200	348	304	<200	<200	<200
Beryllium	ug/l	1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Cadmium	ug/l	4	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Calcium	ug/l	-	60700	5790	82800	194000	105000	116000	22900	102000	35100	116000	113000	29700	79300	26700
Chromium	ug/l	70	<10	<10	<10	<10	<10	<10	15.4	<10	17	<10	<10	<10	<10	<10
Cobalt	ug/l	100	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Copper	ug/l	1300	<10	17.9	16.6	<10	10.5	10.3	26.4	<10	<10	20.7	<10	<10	15.3	<10
Iron	ug/l	300	229	684	3500	1010	4330	1420	5180	2040	5490	11600	4680	8010	487	276
Lead	ug/l	5	<3.0	4.6	3.7	<3.0	<3.0	7.6	17.4	3	<3.0	5.4	<3.0	6.2	<3.0	<3.0
Magnesium	ug/l	-	16100	<5000	7040	28900	15600	20200	<5000	18600	10000	26800	15700	5260	21300	<5000
Manganese	ug/l	50	21.9	<15	1990	1390	105	486	81.4	100	1150	451	129	632	<15	96.3
Mercury	ug/l	2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Nickel	ug/l	100	<10	<10	<10	10.7	<10	<10	10.8	<10	<10	17	<10	<10	<10	<10
Potassium	ug/l	-	<10000	18600	<10000	14800	<10000	<10000	<10000	<10000	<10000	<10000	<10000	<10000	<10000	<10000
Selenium	ug/l	40	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Silver	ug/l	40	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Sodium	ug/l	50000	42000	111000	32000	140000	45300	87300	95900	60400	144000	76300	36900	13900	60100	19600
Thallium	ug/l	2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Vanadium	ug/l	-	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Zinc	ug/l	2000	20.5	41	<20	<20	<20	73.4	229	40.2	<20	32.7	<20	<20	<20	<20

General Chemistry

Nitrogen, Ammonia	ug/l	3000	<200	1400	<200	<200	<200	280	620	<200	850	<200	<200	340	<200	<200
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Footnotes:  
a Associated CCV outside of control limits low.  
b Associated CCV outside of control limits high, sample was ND.  
c This compound in BS is outside in house QC limits bias high.  
d Associated CCV outside of control limits high, sample was ND.  
This compound in BS is outside in house QC limits bias high.  
e Associated CCV and BS outside of control limits high, sample was ND.  
f This compound in BS is outside in house QC limits bias high.  
Associated CCV outside of control limits high, sample was ND.  
g Associated CCV,BS,BSD outside of control limits high, sample was ND.  
h Associated CCV outside of control limits low. Low-level verification was analyzed to demonstrate system suitability to detect affected analytes. Sample was ND.  
i Estimated value, due to corresponding failure in the batch associated CCV.  
j Associated CCV outside of control limits high.  
Estimated value, due to corresponding failure in the batch associated CCV.  
k Associated CCV outside of control limits low. Low-level verification was analyzed to demonstrate system suitability to detect affected analytes. Estimated value, due to corresponding failure in the batch associated CCV.  
l Result confirmed by reextraction outside of the holding time.  
m Sample reextracted outside of the holding time for confirmation.  
n There is no sample left to reextract for confirmation.  
o Elevated sample detection limit due to difficult sample matrix.  
p Elevated detection limit due to dilution required for high interfering element.  
q Elevated detection limit due to dilution required for matrix interference.



- a Associated CCV outside of control limits low.
- b Associated CCV outside of control limits high.
- c This compound is B5 (outside in house QC limits bias high).
- d Associated CCV outside of control limits high, sample was ND.
- e This compound is B5 (outside in house QC limits bias high).
- f Associated CCV and B5 outside of control limits high, sample was ND.
- g This compound is B5 (outside in house QC limits bias high).
- h Associated CCV outside of control limits high, sample was ND.
- i Associated CCV (B5,BSD outside of control limits high, sample was ND).
- j Associated CCV (B5,BSD outside of control limits high, sample was ND).
- k Associated CCV outside of control limits high, sample was ND.
- l Associated CCV outside of control limits low. Low level verification was analyzed to demonstrate system suitability to detect affected analyses. Sample was ND.
- m Estimated value, due to corresponding failure in the batch associated CCV.
- n Associated CCV outside of control limits high.
- o Estimated value, due to corresponding failure in the batch associated CCV.
- p Associated CCV outside of control limits low. Low level verification was analyzed to demonstrate system suitability to detect affected analyses. Estimated value, due to corresponding failure in the batch associated CCV.
- q Result confirmed by reextraction outside of the holding time.
- r Sample reextracted outside of the holding time for confirmation.
- s There is no sample left to reextract for confirmation.
- t Elevated sample detection limit due to difficult sample matrix.
- u Elevated detection limit due to dilution required for high interfering element.
- v Elevated detection limit due to dilution required for matrix interference.

General Chemistry												
Nitrogen, Ammonia	ug/l	3000	1100	<200	<200	320	16300	<200	3200	<200	<200	24600

Footnotes:

q Elevated detection limit due to dilution required for matrix interference.

AOC 14a - First Tankfield  
Groundwater Analytical Results

MS Volatiles (SW846 8260C)MS Volatile TIC

Total TIC, Volatile	ug/l	-	0	5.7 J	0	0	0	0	11.9 J	0
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MS Semi-volatiles (SW846 8270D)

Aceaphthene	ug/l	400	ND (0.18)	ND (0.18)	ND (0.19)	ND (0.18)	ND (0.18)	ND (0.18)	5.9	ND (0.18)
Acenaphthylene	ug/l	-	ND (0.13)	ND (0.13)	ND (0.13)	ND (0.13)	ND (0.13)	ND (0.13)	ND (0.13)	ND (0.13)
Acetophenone	ug/l	700	ND (0.20)	ND (0.20)	ND (0.21)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)
Anthracene	ug/l	2000	ND (0.20)	ND (0.20)	ND (0.21)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)
Atrazine	ug/l	3	ND (0.43) <sup>b</sup>	ND (0.43) <sup>b</sup>	ND (0.44) <sup>b</sup>	ND (0.43) <sup>b</sup>	ND (0.43) <sup>b</sup>	ND (0.43) <sup>b</sup>	ND (0.43)	ND (0.43)
Benzaldehyde	ug/l	-	ND (0.28)	ND (0.28)	ND (0.28)	ND (0.28)	ND (0.28)	ND (0.28)	ND (0.28)	ND (0.28)
Benzol(g,h,i)perylene	ug/l	-	ND (0.32)	ND (0.33)	ND (0.34)	ND (0.33)	ND (0.32)	ND (0.32)	ND (0.32)	ND (0.32)
4-Bromophenyl phenyl ether	ug/l	-	ND (0.38)	ND (0.39)	ND (0.40)	ND (0.39)	ND (0.38)	ND (0.38)	ND (0.38)	ND (0.38)
Butyl phenyl phthalate	ug/l	100	ND (0.44)	ND (0.44)	ND (0.45)	ND (0.44)	ND (0.44)	ND (0.44)	ND (0.44)	0.44 J
1,1'-Biphenyl	ug/l	400	ND (0.20)	ND (0.20)	ND (0.21)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)
2-Chloronaphthalene	ug/l	600	ND (0.22)	ND (0.23)	ND (0.23)	ND (0.22)	ND (0.22)	ND (0.22)	ND (0.22)	ND (0.22)
4-Chloroaniline	ug/l	30	ND (0.32)	ND (0.33)	ND (0.34)	ND (0.33)	ND (0.32)	ND (0.32)	ND (0.32)	ND (0.32)
Carbazole	ug/l	-	ND (0.22)	ND (0.22)	ND (0.23)	ND (0.22)	ND (0.22)	ND (0.22)	ND (0.22)	ND (0.22)
Caprolactam	ug/l	4000	ND (0.62)	ND (0.62)	ND (0.64)	ND (0.62)	ND (0.62)	ND (0.62)	ND (0.62)	ND (0.62)
Chrysene	ug/l	5	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.17)
bis(2-Chloroethoxy)methane	ug/l	-	ND (0.26)	ND (0.27)	ND (0.28)	ND (0.27)	ND (0.26)	ND (0.26)	ND (0.26)	ND (0.26)
bis(2-Chloroethyl)ether	ug/l	7	ND (0.24)	ND (0.24)	ND (0.25)	ND (0.24)	ND (0.24)	ND (0.24)	ND (0.24)	ND (0.24)
2,2'-Oxybis(1-chloropropane)	ug/l	300	ND (0.38)	ND (0.39)	ND (0.40)	ND (0.39)	ND (0.38)	ND (0.38)	ND (0.38)	ND (0.38)
4-Chlorophenyl phenyl ether	ug/l	-	ND (0.35)	ND (0.35)	ND (0.36)	ND (0.35)	ND (0.35)	ND (0.35)	ND (0.35)	ND (0.35)
2,4-Dinitrotoluene	ug/l	-	ND (0.53)	ND (0.53)	ND (0.55)	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)
2,6-Dinitrotoluene	ug/l	-	ND (0.45)	ND (0.46)	ND (0.47)	ND (0.46)	ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)
3,3'-Dichlorobenzidine	ug/l	30	ND (0.48)	ND (0.49)	ND (0.50)	ND (0.49)	ND (0.48)	ND (0.48)	ND (0.48)	ND (0.48)
1,4-Dioxane	ug/l	0.4	-	-	-	-	-	-	-	-
Dibenzofuran	ug/l	-	ND (0.21)	ND (0.21)	ND (0.22)	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.21)
Di-n-butyl phthalate	ug/l	700	ND (0.47)	ND (0.48)	ND (0.49)	ND (0.48)	ND (0.47)	ND (0.47)	ND (0.47)	ND (0.47)
Di-n-octyl phthalate	ug/l	100	ND (0.22)	ND (0.22)	ND (0.23)	ND (0.22)	ND (0.22)	ND (0.22)	ND (0.22)	ND (0.22)
Diethyl phthalate	ug/l	6000	ND (0.25)	ND (0.25)	ND (0.26)	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)
Dimethyl phthalate	ug/l	-	ND (0.21)	ND (0.21)	ND (0.22)	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.21)
bis(2-Ethylhexyl)phthalate	ug/l	3	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)
Fluoranthene	ug/l	300	ND (0.16)	ND (0.16)	ND (0.17)	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.16)
Fluorene	ug/l	300	ND (0.16)	ND (0.16)	ND (0.17)	ND (0.16)	ND (0.16)	ND (0.16)	0.18 J	ND (0.16)
Hexachlorocyclopentadiene	ug/l	40	ND (2.6)	ND (2.7)	ND (2.8)	ND (2.7)	ND (2.6)	ND (2.6)	ND (2.6)	ND (2.6)
Hexachloroethane	ug/l	7	ND (0.37)	ND (0.37)	ND (0.39)	ND (0.37)	ND (0.37)	ND (0.37)	ND (0.37)	ND (0.37)
Isophorone	ug/l	40	ND (0.26)	ND (0.27)	ND (0.27)	ND (0.27)	ND (0.26)	ND (0.26)	ND (0.26)	ND (0.26)
2-Methylnaphthalene	ug/l	30	ND (0.20)	ND (0.20)	ND (0.21)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)
2-Nitroaniline	ug/l	-	ND (0.26)	ND (0.27)	ND (0.27)	ND (0.27)	ND (0.26)	ND (0.26)	ND (0.26)	ND (0.26)
3-Nitroaniline	ug/l	-	ND (0.37)	ND (0.37)	ND (0.38)	ND (0.37)	ND (0.37)	ND (0.37)	ND (0.37) <sup>b</sup>	ND (0.37)
4-Nitroaniline	ug/l	-	ND (0.42)	ND (0.42)	ND (0.44)	ND (0.42)	ND (0.42)	ND (0.42)	ND (0.42)	ND (0.42)
Naphthalene	ug/l	300	ND (0.22)	ND (0.22)	ND (0.23)	ND (0.22)	ND (0.22)	ND (0.22)	ND (0.22)	ND (0.22)
Nitrobenzene	ug/l	6	ND (0.61)	ND (0.62)	ND (0.64)	ND (0.62)	ND (0.61)	ND (0.61)	ND (0.61)	ND (0.61)
N-Nitroso-di-n-propylamine	ug/l	10	ND (0.46)	ND (0.46)	ND (0.48)	ND (0.46)	ND (0.46)	ND (0.46)	ND (0.46)	ND (0.46)
N-Nitrosodiphenylamine	ug/l	10	ND (0.21)	ND (0.21)	ND (0.22)	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.21)
Phenanthrene	ug/l	-	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.17)

Hess Corporation Former Port Reading Complex  
750 Cliff Road  
Port Reading NJ  
Table 5.1

AOC 14a - First Tankfield  
Groundwater Analytical Results

Client Sample ID:		NJ Groundwater Criteria	LPG-1	LPG-2	TM-1	TM-2	TM-3	TM-4	PER-4	PER-5
Lab Sample ID:			JC97978-15	JC97978-16	JC97978-11	JC97978-12	JC97978-13	JC97978-14	JC98258-7	JC98421-4
Date Sampled:			11/4/2019	11/4/2019	11/4/2019	11/4/2019	11/4/2019	11/4/2019	11/8/2019	11/11/2019
Matrix:			Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
Pyrene	ug/l	200	ND (0.21)	ND (0.21)	ND (0.22)	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.21)
1,2,4,5-Tetrachlorobenzene	ug/l	-	ND (0.35)	ND (0.36)	ND (0.37)	ND (0.36)	ND (0.35)	ND (0.35)	ND (0.35)	ND (0.35)

MS Semi-volatiles (SW846 8270D BY SIM)

Benzo(a)anthracene	ug/l	0.1	ND (0.022)	ND (0.022)	ND (0.023)	ND (0.022)	ND (0.022)	ND (0.022)	ND (0.022)	ND (0.022) <sup>b</sup>
Benzo(a)pyrene	ug/l	0.1	ND (0.032)	ND (0.032)	ND (0.033)	ND (0.032)	ND (0.032)	ND (0.032)	ND (0.032)	ND (0.032)
Benzo(b)fluoranthene	ug/l	0.2	ND (0.041)	ND (0.042)	ND (0.043)	ND (0.042)	ND (0.041)	ND (0.041)	ND (0.041)	0.0531
Benzo(k)fluoranthene	ug/l	0.5	ND (0.048)	ND (0.048)	ND (0.050)	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)
Dibenzo(a,h)anthracene	ug/l	0.3	ND (0.048)	ND (0.048)	ND (0.050)	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)
Hexachlorobenzene	ug/l	0.02	ND (0.011)	ND (0.011)	0.0146 J <sup>i</sup>	0.0118 J	ND (0.011)	0.0423	ND (0.011)	0.0266
Hexachlorobutadiene	ug/l	1	ND (0.048)	ND (0.048)	ND (0.050)	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)
Indeno(1,2,3-cd)pyrene	ug/l	0.2	ND (0.048)	ND (0.048)	ND (0.050)	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)
1,4-Dioxane	ug/l	0.4	ND (0.048)	ND (0.048)	ND (0.050)	ND (0.048)	ND (0.048)	ND (0.048)	0.0879 J	ND (0.048)

MS Semi-volatile TIC

Total TIC, Semi-Volatile	ug/l	-	0	0	10.9 J	0	0	0	0	24.9 J
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Metals Analysis

Aluminum	ug/l	200	1160	<200	212	<200	<200	250	240	<200
Antimony	ug/l	6	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0
Arsenic	ug/l	3	1.5	1.6	1.1	19.2	8.9	1.6	31.1	<1.0
Barium	ug/l	6000	<200	208	<200	<200	<200	<200	<200	<200
Beryllium	ug/l	1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Cadmium	ug/l	4	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	3.4	<3.0
Calcium	ug/l	-	<5000	59400	32100	56900	36300	11600	67200	53900
Chromium	ug/l	70	<10	<10	<10	<10	<10	<10	<10	<10
Cobalt	ug/l	100	<50	<50	<50	<50	<50	<50	<50	<50
Copper	ug/l	1300	<10	14.8	<10	<10	<10	<10	<10	18.8
Iron	ug/l	300	2080	78900	1540	59600	97000	4030	24300	246
Lead	ug/l	5	5.2	<3.0	4.4	4	3.3	<3.0	<3.0	<3.0
Magnesium	ug/l	-	<5000	33300	17000	26900	14900	<5000	74200	9080
Manganese	ug/l	50	52.7	1250	5620	2590	3290	786	362	<15
Mercury	ug/l	2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	0.34
Nickel	ug/l	100	<10	<10	32.8	<10	<10	<10	<10	<10
Potassium	ug/l	-	<10000	17800	<10000	<10000	12900	<10000	40600	<10000
Selenium	ug/l	40	<10	<10	<10	<10	<10	<10	<10	<10
Silver	ug/l	40	<10	<10	<10	<10	<10	<10	<10	<10
Sodium	ug/l	50000	<10000	445000	178000	63600	41500	<10000	1050000	18800
Thallium	ug/l	2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0
Vanadium	ug/l	-	<50	<50	<50	<50	<50	<50	<50	<50
Zinc	ug/l	2000	<20	<20	36.3	<20	<20	<20	<20	35

General Chemistry

Nitrogen, Ammonia	ug/l	3000	<200	3700	300	2100	4400	380	3700	<200
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Footnotes:

- a Associated CCV outside of control limits low.  
b Associated CCV outside of control limits high, sample was ND.  
c This compound in BS is outside in house QC limits bias high.  
d Associated CCV outside of control limits high, sample was ND.  
This compound in BS is outside in house QC limits bias high.  
e Associated CCV and BS outside of control limits high, sample was ND.  
f This compound in BS is outside in house QC limits bias high.  
Associated CCV outside of control limits high, sample was ND.  
g Associated CCV,BS,BSD outside of control limits high, sample was ND.  
h Associated CCV outside of control limits low. Low-level verification was analyzed to demonstrate system suitability to detect affected analytes. Sample was ND.  
i Estimated value, due to corresponding failure in the batch associated CCV.  
j Associated CCV outside of control limits high.  
Estimated value, due to corresponding failure in the batch associated CCV.  
k Associated CCV outside of control limits low. Low-level verification was analyzed to demonstrate system suitability to detect affected analytes. Estimated value, due to corresponding failure in the batch associated CCV.  
l Result confirmed by reextraction outside of the holding time.  
m Sample reextracted outside of the holding time for confirmation.  
n There is no sample left to reextract for confirmation.  
o Elevated sample detection limit due to difficult sample matrix.  
p Elevated detection limit due to dilution required for high interfering element.  
q Elevated detection limit due to dilution required for matrix interference.



Hess Corporation Former Port Reading Complex  
750 Cliff Road  
Port Reading NJ  
Table 5.1

AOC 16b - Marine Terminal Loading Area  
Groundwater Analytical Results

Client Sample ID:		NJ Groundwater Criteria	PER-7	PER-8	TL-1	TL-2	TL-3
Lab Sample ID:			JC98148-4	JC98148-5	JC98148-1	JC98148-2	JC98148-3
Date Sampled:			11/6/2019	11/6/2019	11/6/2019	11/6/2019	11/6/2019
Matrix:			Ground Water	Ground Water	Ground Water	Ground Water	Ground Water

MS Volatiles (SW846 8260C)

Acetone	ug/l	6000	ND (6.0)	ND (6.0)	6.2 J	10.1	ND (6.0)
Benzene	ug/l	1	ND (0.43)	ND (0.43)	ND (0.43)	39	0.75
Bromochloromethane	ug/l	-	ND (0.48)	ND (0.48)	ND (0.48)	ND (0.48)	ND (0.48)
Bromodichloromethane	ug/l	1	ND (0.58)	ND (0.58)	ND (0.58)	ND (0.58)	ND (0.58)
Bromoform	ug/l	4	ND (0.63)	ND (0.63)	ND (0.63)	ND (0.63)	ND (0.63)
Bromomethane	ug/l	10	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)
2-Butanone (MEK)	ug/l	300	ND (6.9)	ND (6.9)	ND (6.9)	ND (6.9)	ND (6.9)
Carbon disulfide	ug/l	700	ND (0.95)	ND (0.95)	ND (0.95)	ND (0.95)	ND (0.95)
Carbon tetrachloride	ug/l	1	ND (0.55)	ND (0.55)	ND (0.55)	ND (0.55)	ND (0.55)
Chlorobenzene	ug/l	50	ND (0.56)	ND (0.56)	ND (0.56)	0.66 J	12.1
Chloroethane	ug/l	-	ND (0.73)	ND (0.73)	ND (0.73)	ND (0.73)	ND (0.73)
Chloroform	ug/l	70	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
Chloromethane	ug/l	-	ND (0.76)	ND (0.76)	ND (0.76)	ND (0.76)	ND (0.76)
Cyclohexane	ug/l	-	ND (0.78)	ND (0.78)	1.1 J	65.5	ND (0.78)
1,2-Dibromo-3-chloropropane	ug/l	0.02	ND (1.2)	ND (1.2)	ND (1.2)	ND (1.2)	ND (1.2)
Dibromochloromethane	ug/l	1	ND (0.56)	ND (0.56)	ND (0.56)	ND (0.56)	ND (0.56)
1,2-Dibromoethane	ug/l	0.03	ND (0.48)	ND (0.48)	ND (0.48)	ND (0.48)	ND (0.48)
1,2-Dichlorobenzene	ug/l	600	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)
1,3-Dichlorobenzene	ug/l	600	ND (0.54)	ND (0.54)	ND (0.54)	ND (0.54)	ND (0.54)
1,4-Dichlorobenzene	ug/l	75	ND (0.51)	ND (0.51)	ND (0.51)	ND (0.51)	1.4
Dichlorodifluoromethane	ug/l	1000	ND (1.4)	ND (1.4)	ND (1.4)	ND (1.4)	ND (1.4)
1,1-Dichloroethane	ug/l	50	ND (0.57)	ND (0.57)	ND (0.57)	ND (0.57)	ND (0.57)
1,2-Dichloroethane	ug/l	2	ND (0.60)	ND (0.60)	ND (0.60)	ND (0.60)	ND (0.60)
1,1-Dichloroethene	ug/l	1	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)
cis-1,2-Dichloroethene	ug/l	70	ND (0.51)	ND (0.51)	ND (0.51)	ND (0.51)	ND (0.51)
trans-1,2-Dichloroethene	ug/l	100	ND (0.54)	ND (0.54)	ND (0.54)	ND (0.54)	ND (0.54)
1,2-Dichloropropane	ug/l	1	ND (0.51)	ND (0.51)	ND (0.51)	ND (0.51)	ND (0.51)
cis-1,3-Dichloropropene	ug/l	-	ND (0.47)	ND (0.47)	ND (0.47)	ND (0.47)	ND (0.47)
trans-1,3-Dichloropropene	ug/l	-	ND (0.43)	ND (0.43)	ND (0.43)	ND (0.43)	ND (0.43)
Ethylbenzene	ug/l	700	ND (0.60)	ND (0.60)	ND (0.60)	4.7	ND (0.60)
Freon 113	ug/l	20000	ND (1.9)	ND (1.9)	ND (1.9)	ND (1.9)	ND (1.9)
2-Hexanone	ug/l	40	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)
Isopropylbenzene	ug/l	700	ND (0.65)	ND (0.65)	ND (0.65)	68.2	20
Methyl Acetate	ug/l	7000	ND (0.80)	ND (0.80)	ND (0.80)	ND (0.80)	ND (0.80)
Methylcyclohexane	ug/l	-	ND (0.60)	ND (0.60)	ND (0.60)	37.9	ND (0.60)
Methyl Tert Butyl Ether	ug/l	70	ND (0.51)	ND (0.51)	ND (0.51)	ND (0.51)	ND (0.51)
4-Methyl-2-pentanone(MIBK)	ug/l	-	ND (1.9)	ND (1.9)	ND (1.9)	ND (1.9)	ND (1.9)
Methylene chloride	ug/l	3	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Styrene	ug/l	100	ND (0.70)	ND (0.70)	ND (0.70)	ND (0.70)	ND (0.70)
Tert Butyl Alcohol	ug/l	100	ND (5.8)	ND (5.8)	15	17.6	ND (5.8)
1,1,2,2-Tetrachloroethane	ug/l	1	ND (0.65)	ND (0.65)	ND (0.65)	ND (0.65)	ND (0.65)
Tetrachloroethene	ug/l	1	ND (0.90)	ND (0.90)	ND (0.90)	ND (0.90)	ND (0.90)
Toluene	ug/l	600	ND (0.53)	ND (0.53)	ND (0.53)	2.9	ND (0.53)
1,2,3-Trichlorobenzene	ug/l	-	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
1,2,4-Trichlorobenzene	ug/l	9	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
1,1,1-Trichloroethane	ug/l	30	ND (0.54)	ND (0.54)	ND (0.54)	ND (0.54)	ND (0.54)
1,1,2-Trichloroethane	ug/l	3	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)
Trichloroethene	ug/l	1	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)
Trichlorofluoromethane	ug/l	2000	ND (0.84)	ND (0.84)	ND (0.84)	ND (0.84)	ND (0.84)
Vinyl chloride	ug/l	1	ND (0.79)	ND (0.79)	ND (0.79)	ND (0.79)	ND (0.79)
m,p-Xylene	ug/l	-	ND (0.78)	ND (0.78)	ND (0.78)	2.4	ND (0.78)
o-Xylene	ug/l	-	ND (0.59)	ND (0.59)	ND (0.59)	2.4	ND (0.59)
Xylene (total)	ug/l	1000	ND (0.59)	ND (0.59)	ND (0.59)	4.8	ND (0.59)

MS Volatile TIC

Total TIC, Volatile	ug/l	-	0	0	14.8 J	3406 J	243.4 J
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MS Semi-volatiles (SW846 8270D)

Acenaphthene	ug/l	400	ND (0.18)	ND (0.18)	ND (0.18)	0.46 J	1.5
Acenaphthylene	ug/l	-	ND (0.13)	ND (0.13)	ND (0.13)	ND (0.13)	ND (0.16)
Acetophenone	ug/l	700	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.24)
Anthracene	ug/l	2000	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.25)
Atrazine	ug/l	3	ND (0.43)	ND (0.43)	ND (0.43)	ND (0.43)	ND (0.53)
Benzaldehyde	ug/l	-	ND (0.28)	ND (0.28)	ND (0.28)	ND (0.28)	ND (0.34)
Benzo(g,h,i)perylene	ug/l	-	ND (0.32)	ND (0.32)	ND (0.33)	ND (0.32)	ND (0.40)
4-Bromophenyl phenyl ether	ug/l	-	ND (0.38)	ND (0.38)	ND (0.39)	ND (0.38)	ND (0.48)
Butyl benzyl phthalate	ug/l	100	ND (0.44)	ND (0.44)	ND (0.44)	ND (0.44)	ND (0.54)
1,1'-Biphenyl	ug/l	400	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.25)
2-Chloronaphthalene	ug/l	600	ND (0.22)	ND (0.22)	ND (0.23)	ND (0.22)	ND (0.28)
4-Chloroaniline	ug/l	30	ND (0.32)	ND (0.32)	ND (0.33)	ND (0.32)	ND (0.40)
Carbazole	ug/l	-	ND (0.22)	ND (0.22)	ND (0.22)	ND (0.22)	ND (0.27)
Caprolactam	ug/l	4000	ND (0.62) <sup>b</sup>	ND (0.62) <sup>b</sup>	ND (0.62) <sup>b</sup>	ND (0.62) <sup>b</sup>	ND (0.76) <sup>b</sup>
Chrysene	ug/l	5	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.21)
bis(2-Chloroethoxy)methane	ug/l	-	ND (0.26)	ND (0.26)	ND (0.27)	ND (0.26)	ND (0.33)
bis(2-Chloroethyl)ether	ug/l	7	ND (0.24)	ND (0.24)	ND (0.24)	ND (0.24)	ND (0.29)
2,2'-Oxybis(1-chloropropane)	ug/l	300	ND (0.38)	ND (0.38)	ND (0.39)	ND (0.38)	ND (0.47)
4-Chlorophenyl phenyl ether	ug/l	-	ND (0.35)	ND (0.35)	ND (0.35)	ND (0.35)	ND (0.43)
2,4-Dinitrotoluene	ug/l	-	ND (0.53) <sup>b</sup>	ND (0.53) <sup>b</sup>	ND (0.53) <sup>b</sup>	ND (0.53) <sup>b</sup>	ND (0.65) <sup>b</sup>
2,6-Dinitrotoluene	ug/l	-	ND (0.45)	ND (0.45)	ND (0.46)	ND (0.45)	ND (0.56)
3,3'-Dichlorobenzidine	ug/l	30	ND (0.48)	ND (0.48)	ND (0.49)	ND (0.48)	ND (0.60)
1,4-Dioxane	ug/l	0.4	-	-	-	-	-
Dibenzofuran	ug/l	-	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.21)	1.0 J
Di-n-butyl phthalate	ug/l	700	ND (0.47)	ND (0.47)	ND (0.48)	ND (0.47)	ND (0.58)
Di-n-octyl phthalate	ug/l	100	ND (0.22)	ND (0.22)	ND (0.22)	ND (0.22)	ND (0.28)
Diethyl phthalate	ug/l	6000	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.31)
Dimethyl phthalate	ug/l	-	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.26)
bis(2-Ethylhexyl)phthalate	ug/l	3	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.9)

Hess Corporation Former Port Reading Complex  
750 Cliff Road  
Port Reading NJ  
Table 5.1

AOC 16b - Marine Terminal Loading Area  
Groundwater Analytical Results

Client Sample ID:			PER-7	PER-8	TL-1	TL-2	TL-3
Lab Sample ID:		NJ Groundwater Criteria	JC98148-4	JC98148-5	JC98148-1	JC98148-2	JC98148-3
Date Sampled:			11/6/2019	11/6/2019	11/6/2019	11/6/2019	11/6/2019
Matrix:			Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
Fluoranthene	ug/l	300	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.16)	0.26 J
Fluorene	ug/l	300	ND (0.16)	ND (0.16)	ND (0.16)	0.63 J	0.72 J
Hexachlorocyclopentadiene	ug/l	40	ND (2.6)	ND (2.6)	ND (2.7)	ND (2.6)	ND (3.3)
Hexachloroethane	ug/l	7	ND (0.37)	ND (0.37)	ND (0.37)	ND (0.37)	ND (0.46)
Isophorone	ug/l	40	ND (0.26)	ND (0.26)	ND (0.27)	ND (0.26)	ND (0.33)
2-Methylnaphthalene	ug/l	30	ND (0.20)	ND (0.20)	ND (0.20)	10.5	ND (0.25)
2-Nitroaniline	ug/l	-	ND (0.26)	ND (0.26)	ND (0.27)	ND (0.26)	ND (0.33)
3-Nitroaniline	ug/l	-	ND (0.37)	ND (0.37)	ND (0.37)	ND (0.37)	ND (0.46)
4-Nitroaniline	ug/l	-	ND (0.42)	ND (0.42)	ND (0.42)	ND (0.42)	ND (0.52)
Naphthalene	ug/l	300	ND (0.22)	ND (0.22)	ND (0.22)	10.4	ND (0.27)
Nitrobenzene	ug/l	6	ND (0.61)	ND (0.61)	ND (0.62)	ND (0.61)	ND (0.76)
N-Nitroso-di-n-propylamine	ug/l	10	ND (0.46)	ND (0.46)	ND (0.46)	ND (0.46)	ND (0.57)
N-Nitrosodiphenylamine	ug/l	10	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.26)
Phenanthrene	ug/l	-	ND (0.17)	ND (0.17)	ND (0.17)	0.36 J	ND (0.21)
Pyrene	ug/l	200	ND (0.21) <sup>n</sup>	ND (0.21) <sup>n</sup>	ND (0.21) <sup>n</sup>	ND (0.21) <sup>n</sup>	0.34 J <sup>n</sup>
1,2,4,5-Tetrachlorobenzene	ug/l	-	ND (0.35)	ND (0.35)	ND (0.36)	ND (0.35)	ND (0.44)

MS Semi-volatiles (SW846 8270D BY SIM)

Benzo(a)anthracene	ug/l	0.1	ND (0.022)	0.182	0.163	0.159	0.297
Benzo(a)pyrene	ug/l	0.1	ND (0.032)	0.0836	0.0481	ND (0.032)	ND (0.039)
Benzo(b)fluoranthene	ug/l	0.2	0.0569	0.169	0.0802	ND (0.041)	0.0716
Benzo(k)fluoranthene	ug/l	0.5	ND (0.048)	0.0674 J	ND (0.048)	ND (0.048)	ND (0.059)
Dibenzo(a,h)anthracene	ug/l	0.3	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.059)
Hexachlorobenzene	ug/l	0.02	ND (0.011)	ND (0.011)	ND (0.011)	ND (0.011)	ND (0.013)
Hexachlorobutadiene	ug/l	1	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.059)
Indeno(1,2,3-cd)pyrene	ug/l	0.2	ND (0.048)	0.0849 J	0.0500 J	ND (0.048)	ND (0.059)
1,4-Dioxane	ug/l	0.4	0.0511 J	ND (0.048)	0.0481 J	ND (0.048)	0.0616 J

MS Semi-volatile TIC

Total TIC, Semi-Volatile	ug/l	-	0	0	71.8 J	763.7 J	253 J
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Metals Analysis

Aluminum	ug/l	200	34600	<200	<200	<200	4750
Antimony	ug/l	6	<30	<6.0	<6.0	<6.0	<6.0
Arsenic	ug/l	3	35.5 *	<1.0	4.3	7.2	7.4
Barium	ug/l	6000	<1000	<200	<200	<200	<200
Beryllium	ug/l	1	<5.0	<1.0	<1.0	<1.0	<1.0
Cadmium	ug/l	4	<15	<3.0	<3.0	<3.0	<3.0
Calcium	ug/l	-	<25000	7440	26000	9790	175000
Chromium	ug/l	70	74	<10	<10	<10	19.9
Cobalt	ug/l	100	<250	<50	<50	<50	<50
Copper	ug/l	1300	88	10.2	<10	<10	28.9
Iron	ug/l	300	84500	314	7460	12700	37300
Lead	ug/l	5	119	<3.0	<3.0	<3.0	7.2
Magnesium	ug/l	-	<25000	<5000	8270	11300	142000
Manganese	ug/l	50	272	<15	194	157	639
Mercury	ug/l	2	0.81	<0.20	<0.20	<0.20	0.44
Nickel	ug/l	100	<50	<10	<10	<10	15.5
Potassium	ug/l	-	<50000	<10000	<10000	10400	37800
Selenium	ug/l	40	<50	<10	<10	<10	<10
Silver	ug/l	40	<50	<10	<10	<10	<10
Sodium	ug/l	50000	<50000	<10000	182000	64100	1140000
Thallium	ug/l	2	<5.0 *	<1.0	<1.0	<1.0	<1.0
Vanadium	ug/l	-	<250	<50	<50	<50	<50
Zinc	ug/l	2000	214	96.5	<20	<20	59.8

General Chemistry

Nitrogen, Ammonia	ug/l	3000	<200	<200	1600	940	1500
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Footnotes:

- a Associated CCV outside of control limits low.  
b Associated CCV outside of control limits high, sample was ND.  
c This compound in BS is outside in house QC limits bias high.  
d Associated CCV outside of control limits high, sample was ND.  
This compound in BS is outside in house QC limits bias high.  
e Associated CCV and BS outside of control limits high, sample was ND.  
f This compound in BS is outside in house QC limits bias high.  
Associated CCV outside of control limits high, sample was ND.  
g Associated CCV,BS,BSD outside of control limits high, sample was ND.  
h Associated CCV outside of control limits low. Low-level verification was analyzed to demonstrate system suitability to detect affected analytes. Sample was ND.  
i Estimated value, due to corresponding failure in the batch associated CCV.  
j Associated CCV outside of control limits high.  
Estimated value, due to corresponding failure in the batch associated CCV.  
k Associated CCV outside of control limits low. Low-level verification was analyzed to demonstrate system suitability to detect affected analytes. Estimated value, due to corresponding failure in the batch associated CCV.  
l Result confirmed by reextraction outside of the holding time.  
m Sample reextracted outside of the holding time for confirmation.  
n There is no sample left to reextract for confirmation.  
o Elevated sample detection limit due to difficult sample matrix.  
p Elevated detection limit due to dilution required for high interfering element.  
q Elevated detection limit due to dilution required for matrix interference.

Hess Corporation Former Port Reading Complex  
750 Cliff Road  
Port Reading NJ  
Table 5.1

QC Laboratory  
Groundwater Analytical Results

Client Sample ID:		NJ Groundwater Criteria	MW-1	MW-2	MW-3	MW-4	PER-6R
Lab Sample ID:			JC98148-13	JC98148-14	JC98148-15	JC98148-16	JC98148-17
Date Sampled:			11/6/2019	11/6/2019	11/6/2019	11/6/2019	11/6/2019
Matrix:			Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
MS Volatiles (SW846 8260C)							
Acetone	ug/l	6000	ND (6.0)	ND (6.0)	ND (6.0)	15.1	ND (6.0)
Benzene	ug/l	1	ND (0.43)	ND (0.43)	ND (0.43)	1.8	ND (0.43)
Bromochloromethane	ug/l	-	ND (0.48)	ND (0.48)	ND (0.48)	ND (0.48)	ND (0.48)
Bromodichloromethane	ug/l	1	ND (0.58)	ND (0.58)	ND (0.58)	ND (0.58) <sup>b</sup>	ND (0.58)
Bromoform	ug/l	4	ND (0.63)	ND (0.63)	ND (0.63)	ND (0.63)	ND (0.63)
Bromomethane	ug/l	10	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)
2-Butanone (MEK)	ug/l	300	ND (6.9)	ND (6.9)	ND (6.9)	ND (6.9)	ND (6.9)
Carbon disulfide	ug/l	700	ND (0.95)	ND (0.95)	ND (0.95)	ND (0.95)	ND (0.95)
Carbon tetrachloride	ug/l	1	ND (0.55)	ND (0.55)	ND (0.55)	ND (0.55) <sup>b</sup>	ND (0.55)
Chlorobenzene	ug/l	50	ND (0.56)	ND (0.56)	ND (0.56)	ND (0.56)	ND (0.56)
Chloroethane	ug/l	-	ND (0.73)	ND (0.73)	ND (0.73)	ND (0.73)	ND (0.73)
Chloroform	ug/l	70	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
Chloromethane	ug/l	-	ND (0.76)	ND (0.76)	ND (0.76)	ND (0.76)	ND (0.76)
Cyclohexane	ug/l	-	ND (0.78)	ND (0.78)	ND (0.78)	ND (0.78)	ND (0.78)
1,2-Dibromo-3-chloropropane	ug/l	0.02	ND (1.2)	ND (1.2)	ND (1.2)	ND (1.2)	ND (1.2)
Dibromochloromethane	ug/l	1	ND (0.56)	ND (0.56)	ND (0.56)	ND (0.56)	ND (0.56)
1,2-Dibromoethane	ug/l	0.03	ND (0.48)	ND (0.48)	ND (0.48)	ND (0.48)	ND (0.48)
1,2-Dichlorobenzene	ug/l	600	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)
1,3-Dichlorobenzene	ug/l	600	ND (0.54)	ND (0.54)	ND (0.54)	ND (0.54)	ND (0.54)
1,4-Dichlorobenzene	ug/l	75	ND (0.51)	ND (0.51)	ND (0.51)	ND (0.51)	ND (0.51)
Dichlorodifluoromethane	ug/l	1000	ND (1.4)	ND (1.4)	ND (1.4)	ND (1.4)	ND (1.4)
1,1-Dichloroethane	ug/l	50	ND (0.57)	ND (0.57)	ND (0.57)	ND (0.57)	ND (0.57)
1,2-Dichloroethane	ug/l	2	ND (0.60)	ND (0.60)	ND (0.60)	ND (0.60)	ND (0.60)
1,1-Dichloroethene	ug/l	1	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)
cis-1,2-Dichloroethene	ug/l	70	ND (0.51)	ND (0.51)	ND (0.51)	ND (0.51)	ND (0.51)
trans-1,2-Dichloroethene	ug/l	100	ND (0.54)	ND (0.54)	ND (0.54)	ND (0.54)	ND (0.54)
1,2-Dichloropropane	ug/l	1	ND (0.51)	ND (0.51)	ND (0.51)	ND (0.51)	ND (0.51)
cis-1,3-Dichloropropene	ug/l	-	ND (0.47)	ND (0.47)	ND (0.47)	ND (0.47)	ND (0.47)
trans-1,3-Dichloropropene	ug/l	-	ND (0.43)	ND (0.43)	ND (0.43)	ND (0.43)	ND (0.43)
Ethylbenzene	ug/l	700	ND (0.60)	ND (0.60)	ND (0.60)	4.8	ND (0.60)
Freon 113	ug/l	20000	ND (1.9)	ND (1.9)	ND (1.9)	ND (1.9)	ND (1.9)
2-Hexanone	ug/l	40	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)
Isopropylbenzene	ug/l	700	ND (0.65)	ND (0.65)	ND (0.65)	1.6	ND (0.65)
Methyl Acetate	ug/l	7000	ND (0.80) <sup>a</sup>	ND (0.80) <sup>a</sup>	ND (0.80) <sup>a</sup>	ND (0.80)	ND (0.80) <sup>a</sup>
Methylcyclohexane	ug/l	-	ND (0.60)	ND (0.60)	ND (0.60)	6	ND (0.60)
Methyl Tert Butyl Ether	ug/l	70	ND (0.51)	0.55 J	ND (0.51)	1.8	ND (0.51)
4-Methyl-2-pentanone(MIBK)	ug/l	-	ND (1.9)	ND (1.9)	ND (1.9)	ND (1.9)	ND (1.9)
Methylene chloride	ug/l	3	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Styrene	ug/l	100	ND (0.70)	ND (0.70)	ND (0.70)	ND (0.70)	ND (0.70)
Tert Butyl Alcohol	ug/l	100	ND (5.8)	ND (5.8)	ND (5.8)	24.1	ND (5.8)
1,1,2,2-Tetrachloroethane	ug/l	1	ND (0.65)	ND (0.65)	ND (0.65)	ND (0.65)	ND (0.65)
Tetrachloroethene	ug/l	1	ND (0.90)	ND (0.90)	ND (0.90)	ND (0.90)	ND (0.90)
Toluene	ug/l	600	ND (0.53)	ND (0.53)	ND (0.53)	2.3	ND (0.53)
1,2,3-Trichlorobenzene	ug/l	-	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
1,2,4-Trichlorobenzene	ug/l	9	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
1,1,1-Trichloroethane	ug/l	30	ND (0.54)	ND (0.54)	ND (0.54)	ND (0.54)	ND (0.54)
1,1,2-Trichloroethane	ug/l	3	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)
Trichloroethene	ug/l	1	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)
Trichlorofluoromethane	ug/l	2000	ND (0.84)	ND (0.84)	ND (0.84)	ND (0.84)	ND (0.84)
Vinyl chloride	ug/l	1	ND (0.79)	ND (0.79)	ND (0.79)	ND (0.79)	ND (0.79)
m,p-Xylene	ug/l	-	ND (0.78)	ND (0.78)	ND (0.78)	7.7	ND (0.78)
o-Xylene	ug/l	-	ND (0.59)	ND (0.59)	ND (0.59)	2.7	ND (0.59)
Xylene (total)	ug/l	1000	ND (0.59)	ND (0.59)	ND (0.59)	10.4	ND (0.59)
MS Volatile TIC							
Total TIC, Volatile	ug/l	-	5.4 J	0	6.9 J	227.7 J	0
MS Semi-volatiles (SW846 8270D)							
Acenaphthene	ug/l	400	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)

Hess Corporation Former Port Reading Complex  
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Table 5.1  
QC Laboratory  
Groundwater Analytical Results

Client Sample ID:		NJ Groundwater Criteria	MW-1	MW-2	MW-3	MW-4	PER-6R
Lab Sample ID:			JC98148-13	JC98148-14	JC98148-15	JC98148-16	JC98148-17
Date Sampled:			11/6/2019	11/6/2019	11/6/2019	11/6/2019	11/6/2019
Matrix:			Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
Acenaphthylene	ug/l	-	ND (0.13)	ND (0.13)	ND (0.13)	ND (0.13)	ND (0.13)
Acetophenone	ug/l	700	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)
Anthracene	ug/l	2000	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)
Atrazine	ug/l	3	ND (0.43)	ND (0.43)	ND (0.43)	ND (0.43)	ND (0.43)
Benzaldehyde	ug/l	-	ND (0.28)	ND (0.28)	ND (0.28)	ND (0.28)	ND (0.28)
Benzo(g,h,i)perylene	ug/l	-	ND (0.33)	ND (0.32)	ND (0.32)	ND (0.32)	ND (0.32)
4-Bromophenyl phenyl ether	ug/l	-	ND (0.39)	ND (0.38)	ND (0.38)	ND (0.38)	ND (0.38)
Butyl benzyl phthalate	ug/l	100	ND (0.44)	ND (0.44)	ND (0.44)	ND (0.44)	ND (0.44)
1,1'-Biphenyl	ug/l	400	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)
2-Chloronaphthalene	ug/l	600	ND (0.23)	ND (0.22)	ND (0.22)	ND (0.22)	ND (0.22)
4-Chloroaniline	ug/l	30	ND (0.33)	ND (0.32)	ND (0.32)	ND (0.32)	ND (0.32)
Carbazole	ug/l	-	ND (0.22)	ND (0.22)	ND (0.22)	ND (0.22)	ND (0.22)
Caprolactam	ug/l	4000	ND (0.62) <sup>b</sup>	ND (0.62) <sup>b</sup>	ND (0.62) <sup>b</sup>	ND (0.62) <sup>b</sup>	ND (0.62) <sup>b</sup>
Chrysene	ug/l	5	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.17)
bis(2-Chloroethoxy)methane	ug/l	-	ND (0.27)	ND (0.26)	ND (0.26)	ND (0.26)	ND (0.26)
bis(2-Chloroethyl)ether	ug/l	7	ND (0.24)	ND (0.24)	ND (0.24)	ND (0.24)	ND (0.24)
2,2'-Oxybis(1-chloropropane)	ug/l	300	ND (0.39)	ND (0.38)	ND (0.38)	ND (0.38)	ND (0.38)
4-Chlorophenyl phenyl ether	ug/l	-	ND (0.35)	ND (0.35)	ND (0.35)	ND (0.35)	ND (0.35)
2,4-Dinitrotoluene	ug/l	-	ND (0.53) <sup>h</sup>	ND (0.53) <sup>h</sup>	ND (0.53) <sup>h</sup>	ND (0.53) <sup>h</sup>	ND (0.53) <sup>h</sup>
2,6-Dinitrotoluene	ug/l	-	ND (0.46)	ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)
3,3'-Dichlorobenzidine	ug/l	30	ND (0.49)	ND (0.48)	ND (0.48)	ND (0.48)	ND (0.48)
1,4-Dioxane	ug/l	0.4	-	-	-	-	-
Dibenzofuran	ug/l	-	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.21)
Di-n-butyl phthalate	ug/l	700	ND (0.48)	ND (0.47)	ND (0.47)	ND (0.47)	ND (0.47)
Di-n-octyl phthalate	ug/l	100	ND (0.22)	ND (0.22)	ND (0.22)	ND (0.22)	ND (0.22)
Diethyl phthalate	ug/l	6000	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)
Dimethyl phthalate	ug/l	-	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.21)
bis(2-Ethylhexyl)phthalate	ug/l	3	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)
Fluoranthene	ug/l	300	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.16)
Fluorene	ug/l	300	ND (0.16)	ND (0.16)	ND (0.16)	0.26 J	ND (0.16)
Hexachlorocyclopentadiene	ug/l	40	ND (2.7)	ND (2.6)	ND (2.6)	ND (2.6)	ND (2.6)
Hexachloroethane	ug/l	7	ND (0.37)	ND (0.37)	ND (0.37)	ND (0.37)	ND (0.37)
Isophorone	ug/l	40	ND (0.27)	ND (0.26)	ND (0.26)	ND (0.26)	ND (0.26)
2-Methylnaphthalene	ug/l	30	ND (0.20)	ND (0.20)	ND (0.20)	4	ND (0.20)
2-Nitroaniline	ug/l	-	ND (0.27)	ND (0.26)	ND (0.26)	ND (0.26)	ND (0.26)
3-Nitroaniline	ug/l	-	ND (0.37)	ND (0.37)	ND (0.37)	ND (0.37)	ND (0.37)
4-Nitroaniline	ug/l	-	ND (0.42)	ND (0.42)	ND (0.42)	ND (0.42)	ND (0.42)
Naphthalene	ug/l	300	ND (0.22)	ND (0.22)	ND (0.22)	0.85 J	ND (0.22)
Nitrobenzene	ug/l	6	ND (0.62)	ND (0.61)	ND (0.61)	ND (0.61)	ND (0.61)
N-Nitroso-di-n-propylamine	ug/l	10	ND (0.46)	ND (0.46)	ND (0.46)	ND (0.46)	ND (0.46)
N-Nitrosodiphenylamine	ug/l	10	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.21)
Phenanthrene	ug/l	-	ND (0.17)	ND (0.17)	ND (0.17)	0.40 J	ND (0.17)
Pyrene	ug/l	200	ND (0.21) <sup>h</sup>	ND (0.21) <sup>h</sup>	ND (0.21) <sup>h</sup>	ND (0.21) <sup>h</sup>	ND (0.21) <sup>h</sup>
1,2,4,5-Tetrachlorobenzene	ug/l	-	ND (0.36)	ND (0.35)	ND (0.35)	ND (0.35)	ND (0.35)
MS Semi-volatiles (SW846 8270D BY SIM)							
Benzo(a)anthracene	ug/l	0.1	ND (0.022)	ND (0.022)	ND (0.022)	ND (0.022)	0.271
Benzo(a)pyrene	ug/l	0.1	ND (0.033)	ND (0.032)	ND (0.032)	ND (0.032)	0.142
Benzo(b)fluoranthene	ug/l	0.2	ND (0.043)	ND (0.041)	ND (0.041)	ND (0.041)	0.166
Benzo(k)fluoranthene	ug/l	0.5	ND (0.049)	ND (0.048)	ND (0.048)	ND (0.048)	0.0690 J
Dibenzo(a,h)anthracene	ug/l	0.3	ND (0.049)	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)
Hexachlorobenzene	ug/l	0.02	ND (0.011)	ND (0.011)	ND (0.011)	ND (0.011)	ND (0.011)
Hexachlorobutadiene	ug/l	1	ND (0.049) <sup>b</sup>	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048) <sup>b</sup>
Indeno(1,2,3-cd)pyrene	ug/l	0.2	ND (0.049)	ND (0.048)	ND (0.048)	ND (0.048)	0.0937 J
1,4-Dioxane	ug/l	0.4	ND (0.049) <sup>h</sup>	ND (0.048)	ND (0.048)	0.0885 J	ND (0.048) <sup>h</sup>
MS Semi-volatile TIC							
Total TIC, Semi-Volatile	ug/l	-	0	0	0	75.2 J	0
Metals Analysis							
Aluminum	ug/l	200	2090	256	<200	3840	2860



Hess Corporation Former Port Reading Complex  
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Table 5.1  
QC Laboratory  
Groundwater Analytical Results

Client Sample ID:		NJ Groundwater Criteria	MW-1	MW-2	MW-3	MW-4	PER-6R
Lab Sample ID:			JC98148-13	JC98148-14	JC98148-15	JC98148-16	JC98148-17
Date Sampled:			11/6/2019	11/6/2019	11/6/2019	11/6/2019	11/6/2019
Matrix:			Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
Antimony	ug/l	6	<6.0	<6.0	<6.0	<6.0	<6.0
Arsenic	ug/l	3	2.2	13.5	<1.0	4.6	4.1
Barium	ug/l	6000	<200	<200	<200	<200	<200
Beryllium	ug/l	1	<1.0	<1.0	<1.0	<1.0	<1.0
Cadmium	ug/l	4	<3.0	<3.0	<3.0	<3.0	<3.0
Calcium	ug/l	-	96400	20400	17800	99300	55300
Chromium	ug/l	70	17.1	<10	<10	<10	<10
Cobalt	ug/l	100	<50	<50	<50	<50	<50
Copper	ug/l	1300	34.1	22.9	<10	20.7	23.9
Iron	ug/l	300	592	6520	324	<100	4710
Lead	ug/l	5	<3.0	<3.0	<3.0	<3.0	<3.0
Magnesium	ug/l	-	<5000	<5000	<5000	<5000	7380
Manganese	ug/l	50	<15	343	834	<15	<15
Mercury	ug/l	2	<0.20	<0.20	<0.20	0.27	<0.20
Nickel	ug/l	100	<10	<10	<10	<10	<10
Potassium	ug/l	-	23100	<10000	<10000	34900	12100
Selenium	ug/l	40	<10	<10	<10	<10	<10
Silver	ug/l	40	<10	<10	<10	<10	<10
Sodium	ug/l	50000	22300	88400	25000	58600	12600
Thallium	ug/l	2	<1.0	<1.0	<1.0	<1.0	<1.0
Vanadium	ug/l	-	<50	<50	<50	<50	<50
Zinc	ug/l	2000	<20	36.8	53.9	<20	27.5
<b>General Chemistry</b>							
Nitrogen, Ammonia	ug/l	3000	<200	<200	410	8300	<200

Footnotes:

- a Associated CCV outside of control limits low.
- b Associated CCV outside of control limits high, sample was ND.
- c This compound in BS is outside in house QC limits bias high.
- d Associated CCV outside of control limits high, sample was ND.
- This compound in BS is outside in house QC limits bias high.
- e Associated CCV and BS outside of control limits high, sample was ND.
- f This compound in BS is outside in house QC limits bias high.
- Associated CCV outside of control limits high, sample was ND.
- g Associated CCV,BS,BSD outside of control limits high, sample was ND.
- h Associated CCV outside of control limits low. Low-level verification was analyzed to demonstrate system suitability to detect affected analytes. Sample was ND.
- i Estimated value, due to corresponding failure in the batch associated CCV.
- j Associated CCV outside of control limits high.
- Estimated value, due to corresponding failure in the batch associated CCV.
- k Associated CCV outside of control limits low. Low-level verification was analyzed to demonstrate system suitability to detect affected analytes. Estimated value, due to corresponding failure in the batch associated CCV.
- l Result confirmed by reextraction outside of the holding time.
- m Sample reextracted outside of the holding time for confirmation.
- n There is no sample left to reextract for confirmation.
- o Elevated sample detection limit due to difficult sample matrix.
- p Elevated detection limit due to dilution required for high interfering element.
- q Elevated detection limit due to dilution required for matrix interference.

Client Sample ID:		NJ Groundwater Criteria	SM-1	TF-1	TF-2	TF-3
Lab Sample ID:	JC98258-8		JC98258-3	JC98258-4	JC98258-5	
Date Sampled:	11/8/2019		11/7/2019	11/7/2019	11/7/2019	
Matrix:	Ground Water		Ground Water	Ground Water	Ground Water	
MS Volatiles (SW846 8260C)						
Acetone	ug/l	6000	ND (6.0)	ND (6.0)	ND (6.0)	ND (6.0)
Benzene	ug/l	1	ND (0.43)	0.69	1.3	2.8
Bromochloromethane	ug/l	-	ND (0.48)	ND (0.48)	ND (0.48)	ND (0.48)
Bromodichloromethane	ug/l	1	ND (0.58) <sup>b</sup>	ND (0.58)	ND (0.58)	ND (0.58) <sup>b</sup>
Bromoform	ug/l	4	ND (0.63)	ND (0.63)	ND (0.63)	ND (0.63)
Bromomethane	ug/l	10	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)
2-Butanone (MEK)	ug/l	300	ND (6.9)	ND (6.9)	12.6	ND (6.9)
Carbon disulfide	ug/l	700	ND (0.95)	ND (0.95)	ND (0.95)	ND (0.95)
Carbon tetrachloride	ug/l	1	ND (0.55) <sup>b</sup>	ND (0.55) <sup>b</sup>	ND (0.55) <sup>b</sup>	ND (0.55) <sup>b</sup>
Chlorobenzene	ug/l	50	0.77 J	0.88 J	2.5	ND (0.56)
Chloroethane	ug/l	-	ND (0.73)	ND (0.73)	ND (0.73)	ND (0.73)
Chloroform	ug/l	70	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
Chloromethane	ug/l	-	ND (0.76)	ND (0.76)	ND (0.76)	ND (0.76)
Cyclohexane	ug/l	-	ND (0.78)	3.2 J	1.1 J	ND (0.78)
1,2-Dibromo-3-chloropropane	ug/l	0.02	ND (1.2)	ND (1.2)	ND (1.2)	ND (1.2)
Dibromochloromethane	ug/l	1	ND (0.56)	ND (0.56)	ND (0.56)	ND (0.56)
1,2-Dibromoethane	ug/l	0.03	ND (0.48)	ND (0.48)	ND (0.48)	ND (0.48)
1,2-Dichlorobenzene	ug/l	600	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)
1,3-Dichlorobenzene	ug/l	600	ND (0.54)	ND (0.54)	ND (0.54)	ND (0.54)
1,4-Dichlorobenzene	ug/l	75	ND (0.51)	ND (0.51)	ND (0.51)	ND (0.51)
Dichlorodifluoromethane	ug/l	1000	ND (1.4)	ND (1.4)	ND (1.4)	ND (1.4)
1,1-Dichloroethane	ug/l	50	ND (0.57)	ND (0.57)	ND (0.57)	ND (0.57)
1,2-Dichloroethane	ug/l	2	ND (0.60)	ND (0.60)	ND (0.60)	ND (0.60)
1,1-Dichloroethene	ug/l	1	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)
cis-1,2-Dichloroethene	ug/l	70	ND (0.51)	ND (0.51)	ND (0.51)	ND (0.51)
trans-1,2-Dichloroethene	ug/l	100	ND (0.54)	ND (0.54)	ND (0.54)	ND (0.54)
1,2-Dichloropropane	ug/l	1	ND (0.51)	ND (0.51)	ND (0.51)	ND (0.51)
cis-1,3-Dichloropropene	ug/l	-	ND (0.47)	ND (0.47)	ND (0.47)	ND (0.47)
trans-1,3-Dichloropropene	ug/l	-	ND (0.43)	ND (0.43)	ND (0.43)	ND (0.43)
Ethylbenzene	ug/l	700	ND (0.60)	ND (0.60)	ND (0.60)	ND (0.60)
Freon 113	ug/l	20000	ND (1.9)	ND (1.9)	ND (1.9)	ND (1.9)
2-Hexanone	ug/l	40	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)
Isopropylbenzene	ug/l	700	ND (0.65)	11.7	5.8	6.3
Methyl Acetate	ug/l	7000	ND (0.80)	ND (0.80)	ND (0.80)	ND (0.80)
Methylcyclohexane	ug/l	-	ND (0.60)	1.8 J	0.84 J	ND (0.60)
Methyl Tert Butyl Ether	ug/l	70	ND (0.51)	1.6	1.5	ND (0.51)
4-Methyl-2-pentanone(MIBK)	ug/l	-	ND (1.9)	ND (1.9)	ND (1.9)	ND (1.9)
Methylene chloride	ug/l	3	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Styrene	ug/l	100	ND (0.70)	ND (0.70)	ND (0.70)	ND (0.70)
Tert Butyl Alcohol	ug/l	100	7.9 J	61	54.8	8.9 J
1,1,2,2-Tetrachloroethane	ug/l	1	ND (0.65)	ND (0.65)	ND (0.65)	ND (0.65)
Tetrachloroethene	ug/l	1	ND (0.90)	ND (0.90)	ND (0.90)	ND (0.90)
Toluene	ug/l	600	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)
1,2,3-Trichlorobenzene	ug/l	-	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
1,2,4-Trichlorobenzene	ug/l	9	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
1,1,1-Trichloroethane	ug/l	30	ND (0.54)	ND (0.54)	ND (0.54)	ND (0.54)
1,1,2-Trichloroethane	ug/l	3	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)
Trichloroethene	ug/l	1	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)
Trichlorofluoromethane	ug/l	2000	ND (0.84)	ND (0.84)	ND (0.84)	ND (0.84)
Vinyl chloride	ug/l	1	ND (0.79)	ND (0.79)	ND (0.79)	ND (0.79)
m,p-Xylene	ug/l	-	ND (0.78)	0.95 J	ND (0.78)	ND (0.78)
o-Xylene	ug/l	-	ND (0.59)	0.72 J	0.70 J	ND (0.59)
Xylene (total)	ug/l	1000	ND (0.59)	1.7	0.70 J	ND (0.59)
MS Volatile TIC						
Total TIC, Volatile	ug/l	-	0	345 J	348 J	13.4 J
MS Semi-volatiles (SW846 8270D)						

## Hess Corporation Former Port Reading Complex

750 Cliff Road

Port Reading NJ

Table 5.1

## TRMU - Groundwater Analytical Results

Client Sample ID:		NJ Groundwater Criteria	SM-1	TF-1	TF-2	TF-3
Lab Sample ID:			JC98258-8	JC98258-3	JC98258-4	JC98258-5
Date Sampled:			11/8/2019	11/7/2019	11/7/2019	11/7/2019
Matrix:			Ground Water	Ground Water	Ground Water	Ground Water
Acenaphthene	ug/l	400	0.37 J	ND (0.18)	ND (0.92)	0.72 J
Acenaphthylene	ug/l	-	ND (0.13)	ND (0.13)	ND (0.65)	ND (0.13)
Acetophenone	ug/l	700	ND (0.20)	ND (0.20)	ND (1.0)	ND (0.20)
Anthracene	ug/l	2000	0.26 J	ND (0.20)	ND (1.0)	ND (0.20)
Atrazine	ug/l	3	ND (0.43)	ND (0.43)	ND (2.1)	ND (0.43)
Benzaldehyde	ug/l	-	ND (0.28)	ND (0.28)	ND (1.4)	ND (0.28)
Benzo(g,h,i)perylene	ug/l	-	ND (0.32)	ND (0.32)	ND (1.6)	ND (0.32)
4-Bromophenyl phenyl ether	ug/l	-	ND (0.38)	ND (0.38)	ND (1.9)	ND (0.38)
Butyl benzyl phthalate	ug/l	100	ND (0.44)	ND (0.44)	ND (2.2) <sup>b</sup>	ND (0.44)
1,1'-Biphenyl	ug/l	400	ND (0.20)	ND (0.20)	ND (1.0)	ND (0.20)
2-Chloronaphthalene	ug/l	600	ND (0.22)	ND (0.22)	ND (1.1)	ND (0.22)
4-Chloroaniline	ug/l	30	ND (0.32)	ND (0.32)	ND (1.6)	ND (0.32)
Carbazole	ug/l	-	ND (0.22)	ND (0.22)	ND (1.1)	ND (0.22)
Caprolactam	ug/l	4000	ND (0.62)	ND (0.62)	ND (3.1)	ND (0.62)
Chrysene	ug/l	5	ND (0.17)	ND (0.17)	ND (0.85)	ND (0.17)
bis(2-Chloroethoxy)methane	ug/l	-	ND (0.26)	ND (0.26)	ND (1.3)	ND (0.26)
bis(2-Chloroethyl)ether	ug/l	7	ND (0.24)	ND (0.24)	ND (1.2) <sup>b</sup>	ND (0.24)
2,2'-Oxybis(1-chloropropane)	ug/l	300	ND (0.38)	ND (0.38)	ND (1.9)	ND (0.38)
4-Chlorophenyl phenyl ether	ug/l	-	ND (0.35)	ND (0.35)	ND (1.8)	ND (0.35)
2,4-Dinitrotoluene	ug/l	-	ND (0.53)	ND (0.53)	ND (2.7)	ND (0.53)
2,6-Dinitrotoluene	ug/l	-	ND (0.45)	ND (0.45)	ND (2.3)	ND (0.45)
3,3'-Dichlorobenzidine	ug/l	30	ND (0.48)	ND (0.48)	ND (2.4)	ND (0.48)
1,4-Dioxane	ug/l	0.4	-	-	-	-
Dibenzofuran	ug/l	-	ND (0.21)	ND (0.21)	ND (1.1)	ND (0.21)
Di-n-butyl phthalate	ug/l	700	ND (0.47)	ND (0.47)	ND (2.4)	ND (0.47)
Di-n-octyl phthalate	ug/l	100	ND (0.22) <sup>c</sup>	ND (0.22)	ND (1.1) <sup>b</sup>	ND (0.22)
Diethyl phthalate	ug/l	6000	ND (0.25)	ND (0.25)	ND (1.3)	ND (0.25)
Dimethyl phthalate	ug/l	-	ND (0.21)	ND (0.21)	ND (1.0)	ND (0.21)
bis(2-Ethylhexyl)phthalate	ug/l	3	ND (1.6)	ND (1.6)	ND (7.9) <sup>b</sup>	ND (1.6)
Fluoranthene	ug/l	300	ND (0.16)	ND (0.16)	ND (0.82)	ND (0.16)
Fluorene	ug/l	300	0.17 J	ND (0.16)	ND (0.82)	0.41 J
Hexachlorocyclopentadiene	ug/l	40	ND (2.6)	ND (2.6)	ND (13)	ND (2.6)
Hexachloroethane	ug/l	7	ND (0.37)	ND (0.37)	ND (1.9)	ND (0.37)
Isophorone	ug/l	40	ND (0.26)	ND (0.26)	ND (1.3)	ND (0.26)
2-Methylnaphthalene	ug/l	30	ND (0.20)	ND (0.20)	ND (1.0)	ND (0.20)
2-Nitroaniline	ug/l	-	ND (0.26)	ND (0.26)	ND (1.3)	ND (0.26)
3-Nitroaniline	ug/l	-	ND (0.37) <sup>b</sup>	ND (0.37) <sup>b</sup>	ND (1.9)	ND (0.37) <sup>b</sup>
4-Nitroaniline	ug/l	-	ND (0.42)	ND (0.42)	ND (2.1) <sup>b</sup>	ND (0.42)
Naphthalene	ug/l	300	ND (0.22)	0.30 J	ND (1.1)	ND (0.22)
Nitrobenzene	ug/l	6	ND (0.61)	ND (0.61)	ND (3.1)	ND (0.61)
N-Nitroso-di-n-propylamine	ug/l	10	ND (0.46)	ND (0.46)	ND (2.3)	ND (0.46)
N-Nitrosodiphenylamine	ug/l	10	ND (0.21)	ND (0.21)	ND (1.1)	ND (0.21)
Phenanthrene	ug/l	-	ND (0.17)	ND (0.17)	ND (0.84)	ND (0.17)
Pyrene	ug/l	200	ND (0.21)	ND (0.21)	ND (1.1) <sup>b</sup>	ND (0.21)
1,2,4,5-Tetrachlorobenzene	ug/l	-	ND (0.35)	ND (0.35)	ND (1.8)	ND (0.35)
<b>MS Semi-volatiles (SW846 8270D BY SIM)</b>						
Benzo(a)anthracene	ug/l	0.1	0.0327 J	0.0320 J	ND (0.022)	ND (0.022)
Benzo(a)pyrene	ug/l	0.1	ND (0.032)	ND (0.032)	ND (0.032)	ND (0.032)
Benzo(b)fluoranthene	ug/l	0.2	ND (0.041)	ND (0.041)	ND (0.042)	ND (0.041)
Benzo(k)fluoranthene	ug/l	0.5	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)
Dibenzo(a,h)anthracene	ug/l	0.3	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)
Hexachlorobenzene	ug/l	0.02	ND (0.011)	0.018	ND (0.011)	0.0172
Hexachlorobutadiene	ug/l	1	ND (0.048) <sup>b</sup>	ND (0.048)	ND (0.048)	ND (0.048)
Indeno(1,2,3-cd)pyrene	ug/l	0.2	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)
1,4-Dioxane	ug/l	0.4	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)
<b>MS Semi-volatile TIC</b>						
Total TIC, Semi-Volatile	ug/l	-	4 J	851 J	2382 J	57.1 J

Hess Corporation Former Port Reading Complex  
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Table 5.1

TRMU - Groundwater Analytical Results

Client Sample ID:		NJ Groundwater Criteria	SM-1	TF-1	TF-2	TF-3
Lab Sample ID:			JC98258-8	JC98258-3	JC98258-4	JC98258-5
Date Sampled:			11/8/2019	11/7/2019	11/7/2019	11/7/2019
Matrix:			Ground Water	Ground Water	Ground Water	Ground Water
Metals Analysis						
Aluminum	ug/l	200	1040	<200	<200	684
Antimony	ug/l	6	<6.0	<6.0	<6.0	<6.0
Arsenic	ug/l	3	13.1	18.5	9.5	13.5
Barium	ug/l	6000	<200	<200	<200	<200
Beryllium	ug/l	1	<1.0	<1.0	<1.0	<1.0
Cadmium	ug/l	4	<3.0	<3.0	<3.0	<3.0
Calcium	ug/l	-	12700	63700	104000	20800
Chromium	ug/l	70	<10	<10	<10	10.2
Cobalt	ug/l	100	<50	<50	<50	<50
Copper	ug/l	1300	38.7	<10	<10	12.5
Iron	ug/l	300	6990	29700	29000	16800
Lead	ug/l	5	3.3	<3.0	3.1	7.6
Magnesium	ug/l	-	9930	35300	14700	6260
Manganese	ug/l	50	489	361	933	353
Mercury	ug/l	2	<0.20	<0.20	<0.20	<0.20
Nickel	ug/l	100	<10	<10	<10	23.4
Potassium	ug/l	-	<10000	19500	13200	<10000
Selenium	ug/l	40	<10	<10	<10	<10
Silver	ug/l	40	<10	<10	<10	<10
Sodium	ug/l	50000	76400	259000	142000	29500
Thallium	ug/l	2	<1.0	<1.0	<1.0	<1.0
Vanadium	ug/l	-	<50	<50	<50	<50
Zinc	ug/l	2000	31.9	<20	28	68.8
General Chemistry						
Nitrogen, Ammonia	ug/l	3000	590	4100	2100	220

Footnotes:

- a Associated CCV outside of control limits low.
- b Associated CCV outside of control limits high, sample was ND.
- c This compound in BS is outside in house QC limits bias high.
- d Associated CCV outside of control limits high, sample was ND.
- This compound in BS is outside in house QC limits bias high.
- e Associated CCV and BS outside of control limits high, sample was ND.
- f This compound in BS is outside in house QC limits bias high.
- Associated CCV outside of control limits high, sample was ND.
- g Associated CCV,BS,BSD outside of control limits high, sample was ND.
- h Associated CCV outside of control limits low. Low-level verification was analyzed to demonstrate system suitability to detect affected analytes. Sample was ND.
- i Estimated value, due to corresponding failure in the batch associated CCV.
- j Associated CCV outside of control limits high.
- Estimated value, due to corresponding failure in the batch associated CCV.
- k Associated CCV outside of control limits low. Low-level verification was analyzed to demonstrate system suitability to detect affected analytes. Estimated value, due to corresponding failure in the batch associated CCV.
- l Result confirmed by reextraction outside of the holding time.
- m Sample reextracted outside of the holding time for confirmation.
- n There is no sample left to reextract for confirmation.
- o Elevated sample detection limit due to difficult sample matrix.
- p Elevated detection limit due to dilution required for high interfering element.
- q Elevated detection limit due to dilution required for matrix interference.



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Table 5.1  
SRMU - Groundwater Analytical Results

Client Sample ID:		NJ Groundwater Criteria	PL-1RR	PL-2	PL-3R	PL-4RR	PL-7	PL-8	PL-9R	TM-5	TM-6R	TM-7
Lab Sample ID:			JC98257-11	JC98257-10	JC98257-7	JC98257-9	JC98258-1	JC98258-2	JC98257-8	JC98455-5	JC98455-4	JC98566-1
Date Sampled:			11/7/2019	11/7/2019	11/7/2019	11/7/2019	11/7/2019	11/7/2019	11/7/2019	11/12/2019	11/12/2019	11/13/2019
Matrix:			Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
MS Volatiles (SW846 8260C)												
Acetone	ug/l	6000	ND (6.0)	ND (6.0)	ND (6.0)	ND (6.0)	ND (6.0)	ND (6.0)	ND (6.0)	ND (6.0)	ND (6.0)	ND (6.0)
Benzene	ug/l	1	13.1	5.5	0.49 J	ND (0.43)	ND (0.43)	ND (0.43)	ND (0.43)	ND (0.43)	151	0.62
Bromochloromethane	ug/l	-	ND (0.48)	ND (0.48)	ND (0.48)	ND (0.48)	ND (0.48)	ND (0.48)	ND (0.48)	ND (0.48)	ND (0.48)	ND (0.48)
Bromodichloromethane	ug/l	1	ND (0.58)	ND (0.58)	ND (0.58)	ND (0.58)	ND (0.58)	ND (0.58)	ND (0.58)	ND (0.58)	ND (0.58)	ND (0.58)
Bromoform	ug/l	4	ND (0.63)	ND (0.63)	ND (0.63)	ND (0.63)	ND (0.63)	ND (0.63)	ND (0.63)	ND (0.63)	ND (0.63)	ND (0.63)
Bromomethane	ug/l	10	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)
2-Butanone (MEK)	ug/l	300	ND (6.9)	ND (6.9)	ND (6.9)	ND (6.9)	ND (6.9)	ND (6.9)	ND (6.9)	ND (6.9)	ND (6.9)	ND (6.9)
Carbon disulfide	ug/l	700	ND (0.95)	ND (0.95)	ND (0.95)	ND (0.95)	ND (0.95)	ND (0.95)	ND (0.95)	ND (0.95)	ND (0.95)	ND (0.95)
Carbon tetrachloride	ug/l	1	ND (0.55)	ND (0.55)	ND (0.55)	ND (0.55)	ND (0.55) <sup>a</sup>	ND (0.55) <sup>a</sup>	ND (0.55)	ND (0.55)	ND (0.55)	ND (0.55)
Chlorobenzene	ug/l	50	102	3.9	ND (0.56)	ND (0.56)	ND (0.56)	ND (0.56)	ND (0.56)	ND (0.56)	ND (0.56)	1.5
Chloroethane	ug/l	-	ND (0.73)	ND (0.73)	ND (0.73)	ND (0.73)	ND (0.73)	ND (0.73)	ND (0.73)	ND (0.73)	ND (0.73)	ND (0.73)
Chloroform	ug/l	70	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
Chloromethane	ug/l	-	ND (0.76)	ND (0.76)	ND (0.76)	ND (0.76)	ND (0.76)	ND (0.76)	ND (0.76)	ND (0.76)	ND (0.76)	ND (0.76)
Cyclohexane	ug/l	-	1.1 J	8	10.3	ND (0.78)	ND (0.78)	ND (0.78)	ND (0.78)	ND (0.78)	90.5	37.6
1,2-Dibromo-3-chloropropane	ug/l	0.02	ND (1.2)	ND (1.2)	ND (1.2)	ND (1.2)	ND (1.2)	ND (1.2)	ND (1.2)	ND (1.2)	ND (1.2)	ND (1.2)
Dibromochloromethane	ug/l	1	ND (0.56)	ND (0.56)	ND (0.56)	ND (0.56)	ND (0.56)	ND (0.56)	ND (0.56)	ND (0.56)	ND (0.56)	ND (0.56)
1,2-Dibromoethane	ug/l	0.03	ND (0.48)	ND (0.48)	ND (0.48)	ND (0.48)	ND (0.48)	ND (0.48)	ND (0.48)	ND (0.48)	ND (0.48)	ND (0.48)
1,2-Dichlorobenzene	ug/l	600	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)
1,3-Dichlorobenzene	ug/l	600	1.7	ND (0.54)	ND (0.54)	ND (0.54)	ND (0.54)	ND (0.54)	ND (0.54)	ND (0.54)	ND (0.54)	ND (0.54)
1,4-Dichlorobenzene	ug/l	75	4.3	0.76 J	ND (0.51)	ND (0.51)	ND (0.51)	ND (0.51)	ND (0.51)	ND (0.51)	ND (0.51)	ND (0.51)
Dichlorodifluoromethane	ug/l	1000	ND (1.4) <sup>b</sup>	ND (1.4) <sup>a</sup>	ND (1.4) <sup>a</sup>	ND (1.4) <sup>a</sup>	ND (1.4)	ND (1.4)	ND (1.4) <sup>a</sup>	ND (1.4) <sup>b</sup>	ND (1.4) <sup>b</sup>	ND (1.4)
1,1-Dichloroethane	ug/l	50	ND (0.57)	ND (0.57)	ND (0.57)	ND (0.57)	ND (0.57)	ND (0.57)	ND (0.57)	ND (0.57)	ND (0.57)	ND (0.57)
1,2-Dichloroethane	ug/l	2	ND (0.60)	ND (0.60)	ND (0.60)	ND (0.60)	ND (0.60)	ND (0.60)	ND (0.60)	ND (0.60)	ND (0.60)	ND (0.60)
1,1-Dichloroethene	ug/l	1	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)
cis-1,2-Dichloroethene	ug/l	70	ND (0.51)	ND (0.51)	ND (0.51)	ND (0.51)	ND (0.51)	ND (0.51)	ND (0.51)	ND (0.51)	ND (0.51)	ND (0.51)
trans-1,2-Dichloroethene	ug/l	100	ND (0.54)	ND (0.54)	ND (0.54)	ND (0.54)	ND (0.54)	ND (0.54)	ND (0.54)	ND (0.54)	ND (0.54)	ND (0.54)
1,2-Dichloropropane	ug/l	1	ND (0.51)	ND (0.51)	ND (0.51)	ND (0.51)	ND (0.51)	ND (0.51)	ND (0.51)	ND (0.51)	ND (0.51)	ND (0.51)
cis-1,3-Dichloropropene	ug/l	-	ND (0.47)	ND (0.47)	ND (0.47)	ND (0.47)	ND (0.47)	ND (0.47)	ND (0.47)	ND (0.47)	ND (0.47)	ND (0.47)
trans-1,3-Dichloropropene	ug/l	-	ND (0.43)	ND (0.43)	ND (0.43)	ND (0.43)	ND (0.43)	ND (0.43)	ND (0.43)	ND (0.43)	ND (0.43)	ND (0.43)
Ethylbenzene	ug/l	700	ND (0.60)	ND (0.60)	ND (0.60)	ND (0.60)	ND (0.60)	ND (0.60)	ND (0.60)	ND (0.60)	2.7	ND (0.60)
Freon 113	ug/l	20000	ND (1.9)	ND (1.9) <sup>b</sup>	ND (1.9) <sup>b</sup>	ND (1.9) <sup>b</sup>	ND (1.9)	ND (1.9)	ND (1.9) <sup>b</sup>	ND (1.9)	ND (1.9)	ND (1.9)
2-Hexanone	ug/l	40	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)	ND (2.0)
Isopropylbenzene	ug/l	700	1.8	3.1	1.1	ND (0.65)	ND (0.65)	ND (0.65)	ND (0.65)	ND (0.65)	16.7	45.4
Methyl Acetate	ug/l	7000	ND (0.80)	ND (0.80)	ND (0.80)	ND (0.80)	ND (0.80)	ND (0.80)	ND (0.80)	ND (0.80)	ND (0.80)	ND (0.80)
Methylcyclohexane	ug/l	-	1.8 J	6.3	6.9	ND (0.60)	ND (0.60)	ND (0.60)	ND (0.60)	ND (0.60)	26.7	43.2
Methyl Tert Butyl Ether	ug/l	70	ND (0.51)	2.7	0.97 J	ND (0.51)	ND (0.51)	ND (0.51)	ND (0.51)	ND (0.51)	ND (0.51)	31.1
4-Methyl-2-pentanone(MIBK)	ug/l	-	ND (1.9)	ND (1.9)	ND (1.9)	ND (1.9)	ND (1.9)	ND (1.9)	ND (1.9)	ND (1.9)	ND (1.9)	ND (1.9)
Methylene chloride	ug/l	3	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)	ND (1.0)
Styrene	ug/l	100	ND (0.70)	ND (0.70)	ND (0.70)	ND (0.70)	ND (0.70)	ND (0.70)	ND (0.70)	ND (0.70)	ND (0.70)	ND (0.70)
Tert Butyl Alcohol	ug/l	100	51.5	7.4 J	7.7 J	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	ND (5.8)	170
1,1,2,2-Tetrachloroethane	ug/l	1	ND (0.65)	ND (0.65)	ND (0.65)	ND (0.65)	ND (0.65)	ND (0.65)	ND (0.65)	ND (0.65)	ND (0.65)	ND (0.65)
Tetrachloroethene	ug/l	1	ND (0.90)	ND (0.90)	ND (0.90)	ND (0.90)	ND (0.90)	ND (0.90)	ND (0.90)	ND (0.90)	ND (0.90)	ND (0.90)
Toluene	ug/l	600	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	1.2	14.5
1,2,3-Trichlorobenzene	ug/l	-	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
1,2,4-Trichlorobenzene	ug/l	9	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)
1,1,1-Trichloroethane	ug/l	30	ND (0.54)	ND (0.54)	ND (0.54)	ND (0.54)	ND (0.54)	ND (0.54)	ND (0.54)	ND (0.54)	ND (0.54)	ND (0.54)
1,1,2-Trichloroethane	ug/l	3	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)
Trichloroethene	ug/l	1	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)
Trichlorofluoromethane	ug/l	2000	ND (0.84)	ND (0.84)	ND (0.84)	ND (0.84)	ND (0.84)	ND (0.84)	ND (0.84)	ND (0.84)	ND (0.84)	ND (0.84)
Vinyl chloride	ug/l	1	ND (0.79)	ND (0.79)	ND (0.79)	ND (0.79)	ND (0.79)	ND (0.79)	ND (0.79)	ND (0.79)	ND (0.79)	ND (0.79)
m,p-Xylene	ug/l	-	ND (0.78)	ND (0.78)	ND (0.78)	ND (0.78)	ND (0.78)	ND (0.78)	ND (0.78)	ND (0.78)	1.5	ND (0.78)
o-Xylene	ug/l	-	0.68 J	1.8	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)
Xylene (total)	ug/l	1000	0.68 J	1.8	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	1.5	ND (0.59)
MS Volatile TIC												
Total TIC, Volatile	ug/l	-	54.2 J	186.4 J	29.4 J	0	0	51.8 J	0	0	606 J	775 J
MS Semi-volatiles (SW846 8270D)												
Acenaphthene	ug/l	400	2.3	3.2	0.47 J	ND (0.19)	ND (0.19)	ND (0.19)	ND (0.18)	ND (0.19)	1.2	1.5
Acenaphthylene	ug/l	-	ND (0.14)	ND (0.13)	ND (0.13)	ND (0.13)	ND (0.13)	ND (0.13)	ND (0.13)	ND (0.14)	ND (0.14)	ND (0.13)
Acetophenone	ug/l	700	ND (0.21)	ND (0.21)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.21)	ND (0.21)	ND (0.20)
Anthracene	ug/l	2000	0.59 J	0.65 J	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.20)	ND (0.21)	ND (0.21)	0.27 J
Atrazine	ug/l	3	ND (0.45)	ND (0.44)	ND (0.44)	ND (0.44)	ND (0.44)	ND (0.44)	ND (0.43)	ND (0.45)	ND (0.45)	ND (0.44) <sup>a</sup>
Benzaldehyde	ug/l	-	ND (0.29)	ND (0.29)	ND (0.28)	ND (0.28)	ND (0.28)	ND (0.28)	ND (0.28)	ND (0.29)	ND (0.29)	ND (0.28)
Benzo(g,h,i)perylene	ug/l	-	ND (0.34)	ND (0.34)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.32)	ND (0.34)	ND (0.34)	ND (0.33)
4-Bromophenyl phenyl ether	ug/l	-	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.40)	ND (0.38)	ND (0.40)	ND (0.40)	ND (0.40)
Butyl benzyl phthalate	ug/l	100	ND (0.46)	ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)	ND (0.45)	ND (0.44)	ND (0.46)	ND (0.46) <sup>b</sup>	ND (0.45)
1,1'-Biphenyl	ug/l	400	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.20)	ND (0.21)	ND (0.21)	ND (0.21)
2-Chloronaphthalene	ug/l	600	ND (0.24)	ND (0.23)	ND (0.23)	ND (0.23)	ND (0.23)	ND (0.23)	ND (0.22)	ND (0.24)	ND (0.24)	ND (0.23)
4-Chloroaniline	ug/l	30	ND (0.34)	ND (0.34)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.33)	ND (0.32)	ND (0.34)	ND (0.34)	ND (0.33)

## SRMU - Groundwater Analytical Results

Client Sample ID:		NJ Groundwater Criteria	PL-1RR	PL-2	PL-3R	PL-4RR	PL-7	PL-8	PL-9R	TM-5	TM-6R	TM-7
Lab Sample ID:			JC98257-11	JC98257-10	JC98257-7	JC98257-9	JC98258-1	JC98258-2	JC98257-8	JC98455-5	JC98455-4	JC98566-1
Date Sampled:			11/7/2019	11/7/2019	11/7/2019	11/7/2019	11/7/2019	11/12/2019	11/7/2019	11/12/2019	11/12/2019	11/13/2019
Matrix:			Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
Carbazole	ug/l	-	0.70 J	ND (0.23)	ND (0.22)	ND (0.22)	ND (0.22)	ND (0.22)	ND (0.22)	ND (0.23)	ND (0.23)	ND (0.22)
Caprolactam	ug/l	4000	ND (0.65) <sup>b</sup>	ND (0.64) <sup>b</sup>	ND (0.64) <sup>b</sup>	ND (0.64) <sup>b</sup>	ND (0.64)	ND (0.64)	ND (0.62) <sup>b</sup>	ND (0.65)	ND (0.65)	ND (0.64)
Chrysene	ug/l	5	0.30 J	0.18 J	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.18)	ND (0.18)	ND (0.17)
bis(2-Chloroethoxy)methane	ug/l	-	ND (0.28)	ND (0.28)	ND (0.27)	ND (0.27)	ND (0.27)	ND (0.27)	ND (0.26)	ND (0.28)	ND (0.28)	ND (0.27)
bis(2-Chloroethyl)ether	ug/l	7	ND (0.25)	ND (0.25)	ND (0.24)	ND (0.24)	ND (0.24)	ND (0.24)	ND (0.24)	ND (0.25)	ND (0.25)	ND (0.24)
2,2'-Oxybis(1-chloropropane)	ug/l	300	ND (0.40) <sup>g</sup>	ND (0.40) <sup>g</sup>	ND (0.40) <sup>g</sup>	ND (0.40) <sup>g</sup>	ND (0.40)	ND (0.40)	ND (0.38) <sup>g</sup>	ND (0.40)	ND (0.40)	ND (0.40)
4-Chlorophenyl phenyl ether	ug/l	-	ND (0.37)	ND (0.36)	ND (0.36)	ND (0.36)	ND (0.36)	ND (0.36)	ND (0.35)	ND (0.37)	ND (0.37)	ND (0.36)
2,4-Dinitrotoluene	ug/l	-	ND (0.55) <sup>b</sup>	ND (0.55) <sup>b</sup>	ND (0.54) <sup>b</sup>	ND (0.54) <sup>b</sup>	ND (0.54)	ND (0.54)	ND (0.53) <sup>b</sup>	ND (0.55)	ND (0.55)	ND (0.54)
2,6-Dinitrotoluene	ug/l	-	ND (0.48)	ND (0.47)	ND (0.47)	ND (0.47)	ND (0.47)	ND (0.47)	ND (0.45)	ND (0.48)	ND (0.48)	ND (0.47)
3,3'-Dichlorobenzidine	ug/l	30	ND (0.51)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.50)	ND (0.48)	ND (0.51)	ND (0.51)	ND (0.50)
1,4-Dioxane	ug/l	0.4	-	-	-	-	-	-	-	-	-	--
Dibenzofuran	ug/l	-	0.92 J	0.98 J	0.22 J	ND (0.22)	ND (0.22)	ND (0.22)	ND (0.21)	ND (0.22)	0.30 J	ND (0.22)
Di-n-butyl phthalate	ug/l	700	ND (0.50)	ND (0.49)	ND (0.49)	ND (0.49)	ND (0.49)	ND (0.49)	ND (0.47)	ND (0.50)	ND (0.50)	ND (0.49)
Di-n-octyl phthalate	ug/l	100	ND (0.23) <sup>b</sup>	ND (0.23) <sup>b</sup>	ND (0.23) <sup>b</sup>	ND (0.23) <sup>b</sup>	ND (0.23)	ND (0.23)	ND (0.22) <sup>b</sup>	ND (0.23)	ND (0.23)	ND (0.23)
Diethyl phthalate	ug/l	6000	ND (0.26)	ND (0.26)	ND (0.26)	ND (0.26)	ND (0.26)	ND (0.26)	ND (0.25)	ND (0.26)	ND (0.26)	ND (0.26)
Dimethyl phthalate	ug/l	-	ND (0.22)	ND (0.22)	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.22)	ND (0.22)	ND (0.21)
bis(2-Ethylhexyl)phthalate	ug/l	3	ND (1.7)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.7)	ND (1.7) <sup>b</sup>	ND (1.6)
Fluoranthene	ug/l	300	0.56 J	0.39 J	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.16)	ND (0.17)	ND (0.17)	ND (0.17)
Fluorene	ug/l	300	3.1	4	0.71 J	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.16)	ND (0.17)	0.86 J	2.4
Hexachlorocyclopentadiene	ug/l	40	ND (2.8)	ND (2.8)	ND (2.7)	ND (2.7)	ND (2.7)	ND (2.7)	ND (2.6)	ND (2.8)	ND (2.8)	ND (2.7)
Hexachloroethane	ug/l	7	ND (0.39)	ND (0.39)	ND (0.38)	ND (0.38)	ND (0.38)	ND (0.38)	ND (0.37)	ND (0.39)	ND (0.39)	ND (0.38)
Isophorone	ug/l	40	ND (0.28)	ND (0.27)	ND (0.27)	ND (0.27)	ND (0.27)	ND (0.27)	ND (0.26)	ND (0.28)	ND (0.28)	ND (0.27)
2-Methylnaphthalene	ug/l	30	ND (0.21)	0.95 J	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.20)	ND (0.21)	2	20.2
2-Nitroaniline	ug/l	-	ND (0.28)	ND (0.27)	ND (0.27)	ND (0.27)	ND (0.27)	ND (0.27)	ND (0.26)	ND (0.28)	ND (0.28)	ND (0.27)
3-Nitroaniline	ug/l	-	ND (0.39)	ND (0.38)	ND (0.38)	ND (0.38)	ND (0.38) <sup>b</sup>	ND (0.38) <sup>b</sup>	ND (0.37)	ND (0.39)	ND (0.39)	ND (0.38)
4-Nitroaniline	ug/l	-	ND (0.44)	ND (0.44)	ND (0.43)	ND (0.43)	ND (0.43)	ND (0.43)	ND (0.42)	ND (0.44)	ND (0.44)	ND (0.43)
Naphthalene	ug/l	300	0.43 J	0.56 J	ND (0.23)	ND (0.23)	ND (0.23)	ND (0.23)	ND (0.22)	ND (0.23)	ND (0.23)	1.3
Nitrobenzene	ug/l	6	ND (0.64) <sup>b</sup>	ND (0.64) <sup>b</sup>	ND (0.63) <sup>b</sup>	ND (0.63) <sup>b</sup>	ND (0.63)	ND (0.63)	ND (0.61) <sup>b</sup>	ND (0.64)	ND (0.64)	ND (0.63)
N-Nitroso-di-n-propylamine	ug/l	10	ND (0.48)	ND (0.48)	ND (0.47)	ND (0.47)	ND (0.47)	ND (0.47)	ND (0.46)	ND (0.48)	ND (0.48)	ND (0.47)
N-Nitrosodiphenylamine	ug/l	10	ND (0.22)	ND (0.22)	ND (0.22)	ND (0.22)	ND (0.22)	ND (0.22)	ND (0.21)	ND (0.22)	ND (0.22)	ND (0.22)
Phenanthrene	ug/l	-	1.1	0.82 J	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.18)	0.38 J	1.3
Pyrene	ug/l	200	1.2	0.77 J	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.22)	ND (0.22)	ND (0.21)
1,2,4,5-Tetrachlorobenzene	ug/l	-	ND (0.37)	ND (0.37)	ND (0.36)	ND (0.36)	ND (0.36)	ND (0.36)	ND (0.35)	ND (0.37)	ND (0.37)	ND (0.36)
MS Semi-volatiles (SW846 8270D BY SIM)												
Benzo(a)anthracene	ug/l	0.1	0.316 <sup>1</sup>	0.292 <sup>1</sup>	ND (0.022) <sup>b</sup>	ND (0.022) <sup>b</sup>	ND (0.022)	0.0264 JB <sup>m</sup>	ND (0.022) <sup>b</sup>	ND (0.023)	0.167	ND (0.022)
Benzo(a)pyrene	ug/l	0.1	0.135	0.0627	ND (0.033)	ND (0.033)	ND (0.033)	ND (0.033)	ND (0.032)	ND (0.033)	0.0455 J	ND (0.032)
Benzo(b)fluoranthene	ug/l	0.2	0.127	0.0592	ND (0.043)	ND (0.043)	ND (0.043)	ND (0.043)	ND (0.041)	ND (0.043)	0.0511	ND (0.041)
Benzo(k)fluoranthene	ug/l	0.5	ND (0.050)	ND (0.050)	ND (0.049)	ND (0.049)	ND (0.049)	ND (0.049)	ND (0.048)	ND (0.050)	0.0538 J	ND (0.048)
Dibenzo(a,h)anthracene	ug/l	0.3	ND (0.050)	ND (0.050)	ND (0.049)	ND (0.049)	ND (0.049)	ND (0.049)	ND (0.048)	ND (0.050)	0.0515 J	ND (0.048)
Hexachlorobenzene	ug/l	0.02	ND (0.011)	ND (0.011)	0.018	0.019	ND (0.011)	0.0239 B <sup>m</sup>	0.035	0.0239 B <sup>1</sup>	0.0149 JB	0.0126 JB <sup>b</sup>
Hexachlorobutadiene	ug/l	1	ND (0.050)	ND (0.050)	ND (0.049)	ND (0.049)	ND (0.049)	ND (0.049)	ND (0.048)	ND (0.050)	ND (0.050)	ND (0.048)
Indeno(1,2,3-cd)pyrene	ug/l	0.2	0.0502 J	ND (0.050)	ND (0.049)	ND (0.049)	ND (0.049)	ND (0.049)	ND (0.048)	ND (0.050)	0.0551 J	ND (0.048)
1,4-Dioxane	ug/l	0.4	ND (0.050)	ND (0.050)	0.141	ND (0.049)	ND (0.049)	ND (0.049)	0.0846 J	0.102 B	ND (0.050)	ND (0.048)
MS Semi-volatile TIC												
Total TIC, Semi-Volatile	ug/l	-	110.9 J	115.1 J	0	0	9.3 J	153.4 J	0	4.7 J	153.7 J	265.5 J
Metals Analysis												
Aluminum	ug/l	200	<200	<200	<200	<200	5190	<200	<200	<200	<200	ND (200)
Antimony	ug/l	6	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0	ND (6.0)
Arsenic	ug/l	3	4.9	5.8	<1.0	7.3	2.4	2.6	2.1	1.2	4.1	9.5
Barium	ug/l	6000	227	<200	<200	<200	<200	<200	<200	<200	<200	ND (200)
Beryllium	ug/l	1	<1.0	<1.0	<1.0	<1.0	6.7	<1.0	<1.0	<1.0	<1.0	ND (1.0)
Cadmium	ug/l	4	<3.0	<3.0	<3.0	<3.0	3.1	<3.0	<3.0	<3.0	<3.0	ND (3.0)
Calcium	ug/l	-	113000	12100	38800	17700	51500	31600	74000	41400	42100	39200
Chromium	ug/l	70	<10	<10	<10	<10	<10	<10	<10	<10	<10	ND (10)
Cobalt	ug/l	100	<50	<50	<50	<50	130	<50	<50	<50	<50	ND (50)
Copper	ug/l	1300	<10	<10	10.1	<10	78.8	<10	<10	<10	<10	10.5
Iron	ug/l	300	5590	40000	1510	382	9690	11500	9350	215	29900	15000
Lead	ug/l	5	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	ND (3.0)
Magnesium	ug/l	-	48400	11800	21500	<5000	11200	5270	18000	25400	8140	13600
Manganese	ug/l	50	415	104	121	46.3	1680	146	339	368	1370	3920
Mercury	ug/l	2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	ND (0.20)
Nickel	ug/l	100	<10	<10	<10	<10	136	<10	<10	<10	<10	ND (10)
Potassium	ug/l	-	26100	11000	10300	<10000	<10000	<10000	<10000	<10000	<10000	ND (10000)
Selenium	ug/l	40	<10	<10	<10	<10	<10	<10	<10	<10	<10	ND (10)
Silver	ug/l	40	<10	<10	<10	<10	<10	<10	<10	<10	<10	ND (10)
Sodium	ug/l	50000	412000	326000	155000	81000	21400	22900	76500	283000	27700	82200
Thallium	ug/l	2	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	ND (1.0)
Vanadium	ug/l	-	<50	<50	<50	<50	<50	<50	<50	<50	<50	ND (50)

Hess Corporation Former Port Reading Complex  
750 Cliff Road  
Port Reading NJ  
**Table 5.1**  
SRMU - Groundwater Analytical Results

Client Sample ID:		NJ Groundwater Criteria	PL-1RR	PL-2	PL-3R	PL-4RR	PL-7	PL-8	PL-9R	TM-5	TM-6R	TM-7
Lab Sample ID:			JC98257-11	JC98257-10	JC98257-7	JC98257-9	JC98258-1	JC98258-2	JC98257-8	JC98455-5	JC98455-4	JC98566-1
Date Sampled:			11/7/2019	11/7/2019	11/7/2019	11/7/2019	11/7/2019	11/7/2019	11/7/2019	11/12/2019	11/12/2019	11/13/2019
Matrix:			Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
Zinc	ug/l	2000	<20	<20	<20	<20	346	<20	<20	36.4	20.8	ND (20)
<b>General Chemistry</b>												
Nitrogen, Ammonia	ug/l	3000	4500	5200	1900	<200	210	1000	<200	<200	3900	0.71

Footnotes:

- a Associated CCV outside of control limits low.
- b Associated CCV outside of control limits high, sample was ND.
- c This compound in BS is outside in house QC limits bias high.
- d Associated CCV outside of control limits high, sample was ND.
- This compound in BS is outside in house QC limits bias high.
- e Associated CCV and BS outside of control limits high, sample was ND.
- f This compound in BS is outside in house QC limits bias high.
- Associated CCV outside of control limits high, sample was ND.
- g Associated CCV,BS,BSD outside of control limits high, sample was ND.
- h Associated CCV outside of control limits low. Low-level verification was analyzed to demonstrate system suitability to detect affected analytes. Sample was ND.
- i Estimated value, due to corresponding failure in the batch associated CCV.
- j Associated CCV outside of control limits high.
- Estimated value, due to corresponding failure in the batch associated CCV.
- k Associated CCV outside of control limits low. Low-level verification was analyzed to demonstrate system suitability to detect affected analytes. Estimated value, due to corresponding failure in the batch associated CCV.
- l Result confirmed by reextraction outside of the holding time.
- m Sample reextracted outside of the holding time for confirmation.
- n There is no sample left to reextract for confirmation.
- o Elevated sample detection limit due to difficult sample matrix.
- p Elevated detection limit due to dilution required for high interfering element.
- q Elevated detection limit due to dilution required for matrix interference.

### PSE G- Groundwater Analytical Results

the volumes (GTTG 2000).

the volumes (GTTG 2000).

[illegible]

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Total TIC, Semi-Volatile	ug/l	-	163.1 J	0	0	192.3 J	0	0	0	167.9 J	0	0	0	6.1 J	0	0
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[illegible][illegible][illegible][illegible]



Hess Corporation Former Port Reading Complex  
750 Cliff Road  
Port Reading NJ  
**Table 5.1**

PSE G- Groundwater Analytical Results

Client Sample ID:		NJ Groundwater Criteria	SC-1	SC-1D	SC-1DD	SC-2	SC-2D	SC-2DD	SC-2DD	SC-3	SC-3D	SC-3DD	SC-3DD	SC-4	SC-4D	SC-4DD
Lab Sample ID:			JC98078-14	JC98078-15	JC98078-16	JC98078-10	JC98078-13	JC98078-12	JC98078-11	JC98078-1	JC98078-2	JC98078-3	JC98078-4	JC98078-5	JC98078-6	JC98078-7
Date Sampled:			11/5/2019	11/5/2019	11/5/2019	11/5/2019	11/5/2019	11/5/2019	11/5/2019	11/5/2019	11/5/2019	11/5/2019	11/5/2019	11/5/2019	11/5/2019	11/5/2019
Matrix:			Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water	Ground Water
Benzzo(a)pyrene	ug/l	0.1	ND (0.032)	ND (0.032)	ND (0.032)	ND (0.032)	ND (0.032)	ND (0.032)	ND (0.032)	ND (0.032)	ND (0.032)	ND (0.032)	ND (0.032)	ND (0.032)	ND (0.032)	ND (0.032)
Benzzo(b)fluoranthene	ug/l	0.2	ND (0.041)	ND (0.041)	ND (0.041)	ND (0.041)	ND (0.041)	ND (0.041)	ND (0.041)	ND (0.041)	ND (0.041)	ND (0.041)	ND (0.041)	ND (0.041)	ND (0.041)	ND (0.041)
Benzzo(k)fluoranthene	ug/l	0.5	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)
Dibenzo(a,h)anthracene	ug/l	0.3	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)
Hexachlorobenzene	ug/l	0.02	ND (0.011)	0.0170 B	0.0134 JB	0.0132 JB	0.0175 B	0.0146 B	0.0151 B	ND (0.011)	ND (0.011)	0.0115 JB	0.0129 JB	ND (0.011)	ND (0.011)	ND (0.011)
Hexachlorobutadiene	ug/l	1	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)
Indeno(1,2,3-cd)pyrene	ug/l	0.2	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)
1,4-Dioxane	ug/l	0.4	0.24	0.159	0.317	ND (0.048)	0.269	ND (0.048)	ND (0.048)	0.0647 J	<b>0.407</b>	0.157	ND (0.048)	ND (0.048)	<b>11</b>	<b>7.1</b>

**MS Semi-volatile TIC**

Total TIC, Semi-Volatile	ug/l	-	202.4 J	5.3 J	4.1 J	201.5 J	89.4 J	0	0	132.5 J	5.1 J	0	0	31.1 J	5.5 J	15 J
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**Metals Analysis**

Aluminum	ug/l	200	<b>403</b>	<200	<200	<b>1450</b>	<b>216</b>	<b>240</b>	<b>241</b>	<200	<b>798</b>	<200	<200	<b>1240</b>	<b>433</b>	<b>352</b>
Antimony	ug/l	6	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0	<6.0	<30 <sup>P</sup>	<30 <sup>P</sup>	<6.0	<6.0	<6.0
Arsenic	ug/l	3	<b>14.2</b>	1.7	<1.0	<b>11</b>	<b>9.3</b>	1.4	1.7	3	<b>7.1</b>	1.8	<1.0	<b>3.1</b>	<b>9.1</b>	<b>3.4</b>
Barium	ug/l	6000	315	227	361	1320	<200	<200	<200	3280	<200	<200	234	<200	<200	<200
Beryllium	ug/l	1	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<5.0 <sup>P</sup>	<5.0 <sup>P</sup>	<1.0	<1.0	<1.0
Cadmium	ug/l	4	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<15 <sup>P</sup>	<15 <sup>P</sup>	<3.0	<3.0	<3.0
Calcium	ug/l	-	126000	70000	102000	62000	120000	39200	60800	178000	47200	878000	1390000	50700	33500	74500
Chromium	ug/l	70	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Cobalt	ug/l	100	98.5	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50	<50
Copper	ug/l	1300	108	<10	<10	<10	<10	<10	<10	<10	<10	10.5	<50 <sup>P</sup>	<50 <sup>P</sup>	<10	<10
Iron	ug/l	300	<b>126000</b>	253	<b>6650</b>	<b>76700</b>	156	<b>24100</b>	<b>36200</b>	<b>88100</b>	<b>1540</b>	<b>629000</b>	<b>948000</b>	<b>15100</b>	<b>1570</b>	<b>2530</b>
Lead	ug/l	5	<6.0 <sup>F</sup>	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<15 <sup>P</sup>	<75 <sup>F</sup>	<b>8.5</b>	<3.0	<3.0
Magnesium	ug/l	-	298000	12400	17400	117000	119000	9780	16900	126000	90700	284000	325000	24300	85000	148000
Manganese	ug/l	50	<b>12360</b>	30.9	<b>158</b>	<b>664</b>	<b>106</b>	<b>590</b>	<b>1040</b>	<b>4940</b>	<b>114</b>	<b>14400 <sup>P</sup></b>	<b>21500 <sup>P</sup></b>	<b>323</b>	<b>123</b>	<b>311</b>
Mercury	ug/l	2	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20	<0.20
Nickel	ug/l	100	<10	<10	<10	<10	<10	<10	<10	<10	<10	<50 <sup>P</sup>	<50 <sup>P</sup>	<10	<10	<10
Potassium	ug/l	-	148000	<10000	<10000	85800	30200	<10000	13600	35200	44000	87500	41400	42500	47900	65900
Selenium	ug/l	40	<20 <sup>F</sup>	<10	<10	<10	<10	<10	<10	<10	<10	<50 <sup>P</sup>	<50 <sup>P</sup>	<10	<10	<10
Silver	ug/l	40	<10	<10	<10	<10	<10	<10	<10	<10	<10	<50 <sup>P</sup>	<50 <sup>P</sup>	<10	<10	<10
Sodium	ug/l	50000	<b>2900000</b>	<b>54500</b>	36000	<b>1380000</b>	<b>775000</b>	<b>183000</b>	<b>110000</b>	<b>1150000</b>	<b>534000</b>	<b>2490000</b>	<b>1840000</b>	<b>284000</b>	<b>628000</b>	<b>1110000</b>
Thallium	ug/l	2	<2.5	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<1.0	<2.5	<2.5	<1.0	<1.0	<1.0
Vanadium	ug/l	-	<50	<50	<50	<50	<50	<50	<50	<50	<50	<250 <sup>P</sup>	<250 <sup>P</sup>	<50	<50	<50
Zinc	ug/l	2000	41.6	<20	<20	34.6	<20	<20	<20	<20	44.1	40.8	39.3	<20	<20	<20

**General Chemistry**

Nitrogen, Ammonia	ug/l	3000	<b>36600</b>	800	<200	<b>15700</b>	2900	<200	<200	<b>6000</b>	<b>4200</b>	1000	630	2800	<b>3300</b>	<b>5200</b>
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Footnotes:

- a Associated CCV outside of control limits low.  
b Associated CCV outside of control limits high, sample was ND.  
c This compound in BS is outside in house QC limits bias high.  
d Associated CCV outside of control limits high, sample was ND.  
This compound in BS is outside in house QC limits bias high.  
e Associated CCV and BS outside of control limits high, sample was ND.  
f This compound in BS is outside in house QC limits bias high.  
Associated CCV outside of control limits high, sample was ND.  
g Associated CCV,BS,BSD outside of control limits high, sample was ND.  
h Associated CCV outside of control limits low. Low-level verification was analyzed to demonstrate system suitability to detect affected analytes. Sample was ND.  
i Estimated value, due to corresponding failure in the batch associated CCV.  
j Associated CCV outside of control limits high.  
Estimated value, due to corresponding failure in the batch associated CCV.  
k Associated CCV outside of control limits low. Low-level verification was analyzed to demonstrate system suitability to detect affected analytes. Estimated value, due to corresponding failure in the batch associated CCV.  
l Result confirmed by reextraction outside of the holding time.  
m Sample reextracted outside of the holding time for confirmation.  
n There is no sample left to reextract for confirmation.  
o Elevated sample detection limit due to difficult sample matrix.  
p Elevated detection limit due to dilution required for high interfering element.  
q Elevated detection limit due to dilution required for matrix interference.

# **ATTACHMENT 6**

## **VAPOR INTRUSION**

### **FIGURES & TABLES**

**Figure 6.1 – 2010 Air Sampling Locations**

**Table 6.1 – 2010 Sub-slab Soil Gas Analytical Results**

**Table 6.2 – Indoor Air Analytical Results**

**Figure 6.2 – 2016 Sub-Slab Sampling Locations**

**Figure 6.3 – 2016 Indoor Air Sampling Locations**

**Table 6.3 – 2016 Sub-Slab Soil Gas Analytical Results**

**Table 6.4 – 2016 Indoor Air Analytical Results**

**Figure 6.4 – July 2020 Indoor Air Sampling Locations**

**Table 6.5 – July 2020 Indoor Air Analytical Results**



AD-1



**LEGEND:**

- MONITORING WELL
- AMBIENT AIR SAMPLE

FIGURE #  
6.1

HESS CORPORATION  
750 CLIFF ROAD  
PORT READING, NEW JERSEY

AOC 11 – ADMINISTRATION BUILDING  
AIR SAMPLING LOCATION MAP

DRAWN BY: B.S.

REVISION DATE: 10/19/10

0 5 10  
SCALE IN FEET

**EnviroTrac**  
ENVIRONMENTAL SERVICES  
400E CORPORATE COURT, So. PLAINFIELD NJ 07080  
PHONE: (908)757-1900 FAX: (908)757-0017

**Table 6.1**  
**2010 Summary of Soil Gas Analytical Results - Administration Building**  
**Hess Corporation - Port Reading Refinery**  
**750 Cliff Road]**  
**Port Reading, New Jersey**

Client Sample ID:		NJ Vapor Intrusion Nonresidential Soil Gas (NJAC 7:26E 3/13) <sup>1</sup>	SUBSLAB-1	SUBSLAB-2
Lab Sample ID:			JA61380-7	JA61380-8
Date Sampled:			11/10/2010	11/10/2010
Matrix:			Air	Air
<b>GC/MS Volatiles (TO-15) - ug/m3</b>				
Acetone	ug/m3	6800000	1180	206
1,3-Butadiene	ug/m3	20	ND (1.5)	ND (0.24)
Benzene	ug/m3	79	24	3.8
Bromodichloromethane	ug/m3	34	ND (4.0)	ND (0.67)
Bromoform	ug/m3	560	ND (6.1)	ND (1.0)
Bromomethane	ug/m3	1100	ND (2.4)	ND (0.39)
Bromoethene	ug/m3	22	ND (3.4)	ND (0.57)
Benzyl Chloride	ug/m3	-	ND (4.2)	ND (0.72)
Carbon disulfide	ug/m3	150000	146	18
Chlorobenzene	ug/m3	11000	ND (3.4)	ND (0.55)
Chloroethane	ug/m3	2200000	31.7	ND (0.53)
Chloroform	ug/m3	27	46	26
Chloromethane	ug/m3	20000	ND (2.7)	1.1 J
3-Chloropropene	ug/m3	100	ND (2.6)	ND (0.44)
2-Chlorotoluene	ug/m3	-	ND (4.0)	ND (0.67)
Carbon tetrachloride	ug/m3	100	ND (3.5)	ND (0.57)
Cyclohexane	ug/m3	1300000	14 J	ND (0.59)
1,1-Dichloroethane	ug/m3	380	3220	ND (0.40)
1,1-Dichloroethylene	ug/m3	44000	89.2	ND (0.38)
1,2-Dibromoethane	ug/m3	38	ND (5.5)	ND (0.92)
1,2-Dichloroethane	ug/m3	24	ND (2.3)	ND (0.38)
1,2-Dichloropropane	ug/m3	61	ND (6.0)	ND (1.0)
1,4-Dioxane	ug/m3	-	ND (3.4)	ND (0.58)
Dichlorodifluoromethane	ug/m3	22000	15 J	2.2 J
Dibromochloromethane	ug/m3	43	ND (17)	ND (2.8)
trans-1,2-Dichloroethylene	ug/m3	13000	ND (3.3)	ND (0.56)
cis-1,2-Dichloroethylene	ug/m3	-	ND (3.0)	ND (0.52)
cis-1,3-Dichloropropene	ug/m3	-	ND (2.4)	ND (0.39)
m-Dichlorobenzene	ug/m3	-	ND (3.6)	ND (0.60)
o-Dichlorobenzene	ug/m3	44000	ND (4.6)	ND (0.78)
p-Dichlorobenzene	ug/m3	56	39	20
trans-1,3-Dichloropropene	ug/m3	-	ND (8.6)	ND (1.4)
Ethanol	ug/m3	-	40.9	20.7
Ethylbenzene	ug/m3	250	ND (2.8)	4.8
Ethyl Acetate	ug/m3	-	ND (6.5)	ND (1.1)
4-Ethyltoluene	ug/m3	-	ND (2.9)	ND (0.47)
Freon 113	ug/m3	6600000	ND (4.8)	ND (0.77)
Freon 114	ug/m3	-	ND (4.9)	ND (0.84)
Heptane	ug/m3	-	27	1.7 J
Hexachlorobutadiene	ug/m3	53	ND (15)	ND (2.6)
Hexane	ug/m3	150000	37.4	2.1 J
2-Hexanone	ug/m3	-	60.9	12
Isopropyl Alcohol	ug/m3	-	ND (3.2)	2.2
Methylene chloride	ug/m3	61000	ND (2.2)	ND (0.38)
Methyl ethyl ketone	ug/m3	1100000	104	15
Methyl Isobutyl Ketone	ug/m3	660000	38	5.7
Methyl Tert Butyl Ether	ug/m3	2400	ND (3.6)	ND (0.61)
Propylene	ug/m3	-	235	4.3
Styrene	ug/m3	220000	ND (2.7)	ND (0.47)
1,1,1-Trichloroethane	ug/m3	1100000	2760	ND (0.53)
1,1,2,2-Tetrachloroethane	ug/m3	34	ND (4.2)	ND (0.69)
1,1,2-Trichloroethane	ug/m3	38	ND (3.2)	ND (0.52)
1,2,4-Trichlorobenzene	ug/m3	440	ND (21)	ND (3.4)
1,2,4-Trimethylbenzene	ug/m3	-	15 J	5.4
1,3,5-Trimethylbenzene	ug/m3	-	ND (3.2)	ND (0.54)
2,2,4-Trimethylpentane	ug/m3	-	61.2	1.8 J
Tertiary Butyl Alcohol	ug/m3	-	20	6.7
Tetrachloroethylene	ug/m3	2400	ND (6.5)	1.6
Tetrahydrofuran	ug/m3	-	ND (4.1)	ND (0.68)
Toluene	ug/m3	1100000	37	17
Trichloroethylene	ug/m3	150	ND (3.1)	1.5
Trichlorofluoromethane	ug/m3	150000	ND (4.3)	ND (0.73)
Vinyl chloride	ug/m3	140	ND (1.8)	ND (0.31)
Vinyl Acetate	ug/m3	-	ND (11)	ND (1.9)
m,p-Xylene	ug/m3	22000	23	15
o-Xylene	ug/m3	22000	ND (2.6)	4.8
Xylenes (total)	ug/m3	22000	23	20

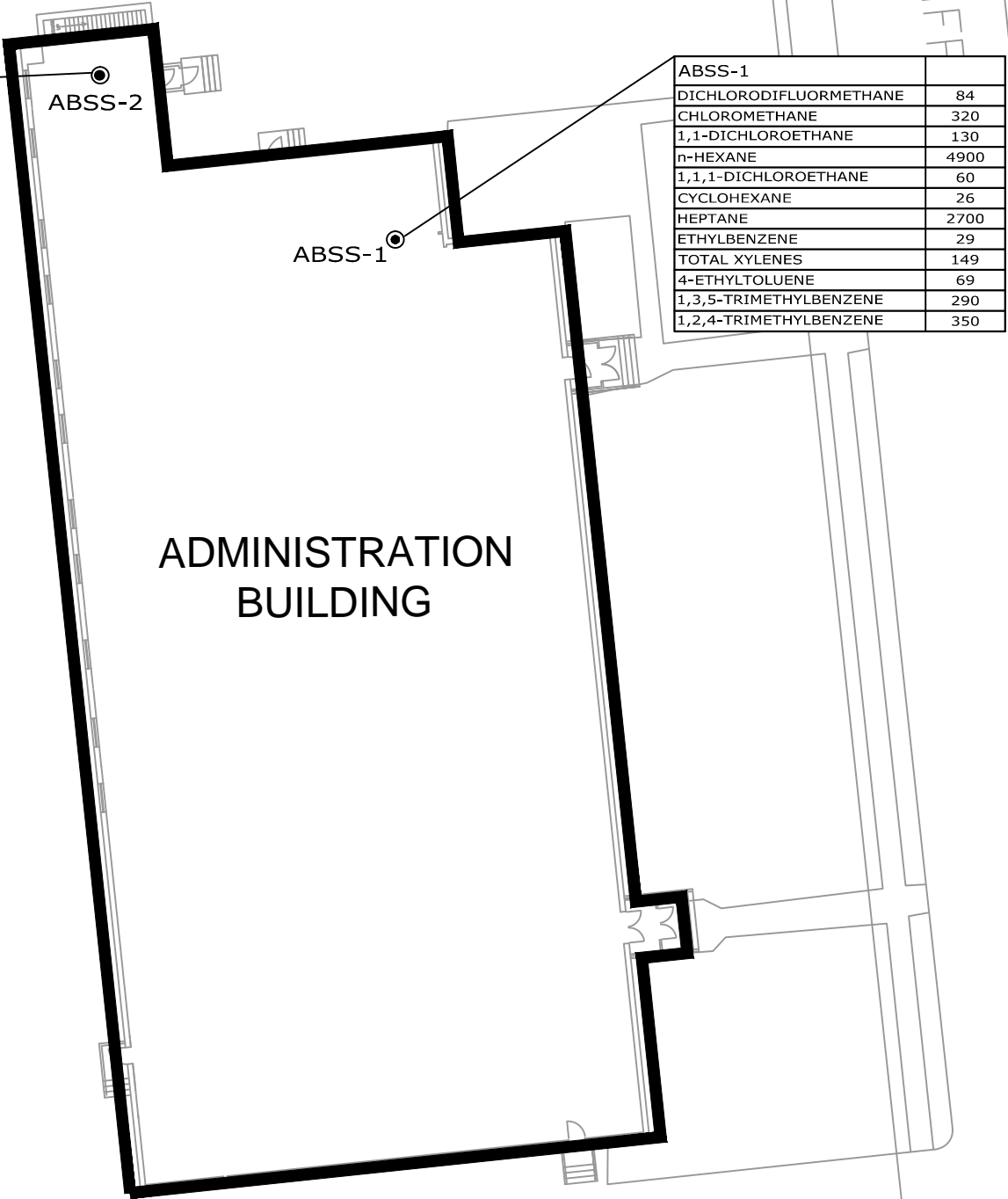


**Table 6.2**  
**2010 Summary of Indoor Air Analytical Results - Administration Building**  
**Hess Corporation - Port Reading Refinery**  
**750 Cliff Road**  
**Port Reading, New Jersey**

Client Sample ID:		NJ Vapor Intrusion Rapid Action Levels - Nonresidential (NJAC 7:26E 3/13) <sup>1</sup>	NJ Vapor Intrusion Nonresidential Indoor Air (NJAC 7:26E 3/13) <sup>1</sup>	A-1	A-2	A-3	A-4	A-5	A-6
Lab Sample ID:				JA61380-1	JA61380-2	JA61380-3	JA61380-4	JA61380-5	JA61380-6
Date Sampled:				11/10/2010	11/10/2010	11/10/2010	11/10/2010	11/10/2010	11/10/2010
Matrix:				Air	Air	Air	Air	Air	Air
<b>GC/MS Volatiles (TO-15) - ug/m3</b>									
Acetone	ug/m3	280000	140000	5.2	7.8	7.1	5	12	14
1,3-Butadiene	ug/m3	18	1	ND (0.062)	ND (0.062)	ND (0.062)	ND (0.062)	ND (0.062)	ND (0.062)
Benzene	ug/m3	200	2	0.7	1.2	0.67	0.7	0.73	0.67
Bromodichloromethane	ug/m3	30	3	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.17)
Bromoform	ug/m3	1100	11	ND (0.26)	ND (0.26)	ND (0.26)	ND (0.26)	ND (0.26)	ND (0.26)
Bromomethane	ug/m3	44	22	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)
Bromoethene	ug/m3	26	2	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)
Benzyl Chloride	ug/m3	-	-	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)
Carbon disulfide	ug/m3	6200	3100	ND (0.090)	ND (0.090)	ND (0.090)	ND (0.090)	ND (0.090)	ND (0.090)
Chlorobenzene	ug/m3	440	220	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)
Chloroethane	ug/m3	88000	44000	ND (0.13)	ND (0.13)	ND (0.13)	ND (0.13)	ND (0.13)	ND (0.13)
Chloroform	ug/m3	50	2	ND (0.13)	ND (0.13)	ND (0.13)	ND (0.13)	ND (0.13)	ND (0.13)
Chloromethane	ug/m3	780	390	1.2	1.2	1.4	1.3	1.4	1.4
3-Chloropropene	ug/m3	8	2	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.11)
2-Chlorotoluene	ug/m3	-	-	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.17)
Carbon tetrachloride	ug/m3	200	3	0.62 J	0.63 J	ND (0.14)	0.63 J	ND (0.14)	0.61 J
Cyclohexane	ug/m3	52000	26000	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)	0.41 J	ND (0.14)
1,1-Dichloroethane	ug/m3	800	8	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)
1,1-Dichloroethylene	ug/m3	1800	880	ND (0.095)	ND (0.095)	ND (0.095)	ND (0.095)	ND (0.095)	ND (0.095)
1,2-Dibromoethane	ug/m3	4	4	ND (0.23)	ND (0.23)	ND (0.23)	ND (0.23)	ND (0.23)	ND (0.23)
1,2-Dichloroethane	ug/m3	50	2	ND (0.097)	ND (0.097)	ND (0.097)	ND (0.097)	ND (0.097)	ND (0.097)
1,2-Dichloropropane	ug/m3	36	2	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)	ND (0.25)
1,4-Dioxane	ug/m3	-	-	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)
Dichlorodifluoromethane	ug/m3	880	440	2.7	2.7	2.8	2.9	2.8	3
Dibromochloromethane	ug/m3	50	4	ND (0.70)	ND (0.70)	ND (0.70)	ND (0.70)	ND (0.70)	ND (0.70)
trans-1,2-Dichloroethylene	ug/m3	520	260	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)
cis-1,2-Dichloroethylene	ug/m3	-	-	ND (0.12)	ND (0.12)	ND (0.12)	ND (0.12)	ND (0.12)	ND (0.12)
cis-1,3-Dichloropropene	ug/m3	-	-	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)
m-Dichlorobenzene	ug/m3	-	-	ND (0.15)	ND (0.15)	ND (0.15)	ND (0.15)	ND (0.15)	ND (0.15)
o-Dichlorobenzene	ug/m3	1800	880	ND (0.19)	ND (0.19)	ND (0.19)	ND (0.19)	ND (0.19)	ND (0.19)
p-Dichlorobenzene	ug/m3	100	3	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.16)
trans-1,3-Dichloropropene	ug/m3	-	-	ND (0.36)	ND (0.36)	ND (0.36)	ND (0.36)	ND (0.36)	ND (0.36)
Ethanol	ug/m3	-	-	10	8.5	7.7	8.5	79.1 E	98.0 E
Ethylbenzene	ug/m3	500	5	0.48 J	0.56 J	ND (0.12)	ND (0.12)	0.56 J	0.48 J
Ethyl Acetate	ug/m3	-	-	ND (0.28)	ND (0.28)	ND (0.28)	ND (0.28)	1.3	1.8
4-Ethyltoluene	ug/m3	-	-	ND (0.12)	ND (0.12)	ND (0.12)	ND (0.12)	ND (0.12)	ND (0.12)
Freon 113	ug/m3	260000	130000	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)
Freon 114	ug/m3	-	-	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)
Heptane	ug/m3	-	-	0.78 J	0.86	0.70 J	0.70 J	1	1
Hexachlorobutadiene	ug/m3	60	5	ND (0.64)	ND (0.64)	ND (0.64)	ND (0.64)	ND (0.64)	ND (0.64)
Hexane	ug/m3	6200	3100	1	0.95	0.81	0.88	0.95	0.88
2-Hexanone	ug/m3	-	-	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)
Isopropyl Alcohol	ug/m3	-	-	1.1	1.2	0.93	0.84	45.2	110 E
Methylene chloride	ug/m3	5200	1200	1.4	1.1	1.1	1.3	1.4	1.3
Methyl ethyl ketone	ug/m3	44000	22000	2.5	5	1.8	1.8	3.2	2.6
Methyl Isobutyl Ketone	ug/m3	26000	13000	ND (0.15)	ND (0.15)	ND (0.15)	ND (0.15)	ND (0.15)	ND (0.15)
Methyl Tert Butyl Ether	ug/m3	4700	47	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.16)
Propylene	ug/m3	-	-	1.2	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.16)
Styrene	ug/m3	8800	4400	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.11)
1,1,1-Trichloroethane	ug/m3	44000	22000	0.55 J	ND (0.13)	ND (0.13)	ND (0.13)	ND (0.13)	ND (0.13)
1,1,2,2-Tetrachloroethane	ug/m3	20	3	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.17)
1,1,2-Trichloroethane	ug/m3	3	3	ND (0.13)	ND (0.13)	ND (0.13)	ND (0.13)	ND (0.13)	ND (0.13)
1,2,4-Trichlorobenzene	ug/m3	18	9	ND (0.89)	ND (0.89)	ND (0.89)	ND (0.89)	ND (0.89)	ND (0.89)
1,2,4-Trimethylbenzene	ug/m3	-	-	1	1.3	0.54 J	0.54 J	0.88 J	0.74 J
1,3,5-Trimethylbenzene	ug/m3	-	-	ND (0.13)	ND (0.13)	ND (0.13)	ND (0.13)	ND (0.13)	ND (0.13)
2,2,4-Trimethylpentane	ug/m3	-	-	0.93	4	ND (0.098)	ND (0.098)	0.51 J	0.51 J
Tertiary Butyl Alcohol	ug/m3	-	-	ND (0.12)	ND (0.12)	ND (0.12)	ND (0.12)	ND (0.12)	ND (0.12)
Tetrachloroethylene	ug/m3	360	47	ND (0.27)	ND (0.27)	ND (0.27)	ND (0.27)	ND (0.27)	ND (0.27)
Tetrahydrofuran	ug/m3	-	-	ND (0.17)	0.38 J	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.17)
Toluene	ug/m3	44000	22000	2.4	2.4	2.1	2.1	3.3	3.1
Trichloroethylene	ug/m3	18	3	ND (0.13)	ND (0.13)	ND (0.13)	ND (0.13)	ND (0.13)	ND (0.13)
Trichlorofluoromethane	ug/m3	6200	3100	1.7	1.6	1.5	1.6	1.8	1.7
Vinyl chloride	ug/m3	300	3	ND (0.074)	ND (0.074)	ND (0.074)	ND (0.074)	ND (0.074)	ND (0.074)
Vinyl Acetate	ug/m3	-	-	ND (0.46)	ND (0.46)	ND (0.46)	ND (0.46)	ND (0.46)	ND (0.46)
m,p-Xylene	ug/m3	880	440	1.9	2.3	1.2	1.1	1.8	1.6
o-Xylene	ug/m3	880	440	0.69 J	0.74 J	ND (0.11)	ND (0.11)	0.65 J	0.52 J
Xylenes (total)	ug/m3	880	440	2.6	3.1	1.2	1.1	2.4	2.1

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ABSS-2	
ETHANOL	870
ACETONE	43
ISOPROPANOL	570
METHYLENE CHLORIDE	6
CARBON DISULFIDE	19
1,1-DICHLOROETHANE	57
2-BUTANONE	19
1,1,1-DICHLOROETHANE	26
CYCLOHEXANE	2
TOLUENE	5
ETHYLBENZENE	4
TOTAL XYLENES	20
1,3-DICHLOROBENZENE	23



ABSS-1	
DICHLORODIFLUORMETHANE	84
CHLOROMETHANE	320
1,1-DICHLOROETHANE	130
n-HEXANE	4900
1,1,1-DICHLOROETHANE	60
CYCLOHEXANE	26
HEPTANE	2700
ETHYLBENZENE	29
TOTAL XYLENES	149
4-ETHYLTOLUENE	69
1,3,5-TRIMETHYLBENZENE	290
1,2,4-TRIMETHYLBENZENE	350

LEGEND  
● SUB-SLAB SOIL GAS SAMPLES (BASEMENT)

COMPOUND	NJDEP NON-RESIDENTIAL SOIL GAS SCREENING LEVELS (ug/m³)
ETHANOL	NS
ACETONE	6800000
DICHLORODIFLUORMETHANE	22000
CHLOROMETHANE	2200000
1,1-DICHLOROETHANE	380
n-HEXANE	150000
1,1,1-DICHLOROETHANE	1100000
CYCLOHEXANE	1300000
HEPTANE	NS
ETHYLBENZENE	250
TOTAL XYLENES	NS
4-ETHYLTOLUENE	NS
1,3,5-TRIMETHYLBENZENE	NS
1,2,4-TRIMETHYLBENZENE	NS
1,3-DICHLOROBENZENE	NS
METHYLENE CHLORIDE	61000
CARBON DISULFIDE	150000
2-BUTANONE	1100000
ISOPROPANOL	NS

NOTES:  
1. NO SUB-SLAB SOIL GAS SAMPLE COLLECTED IN THIS  
PORTION OF BASEMENT DUE TO FLOODING.



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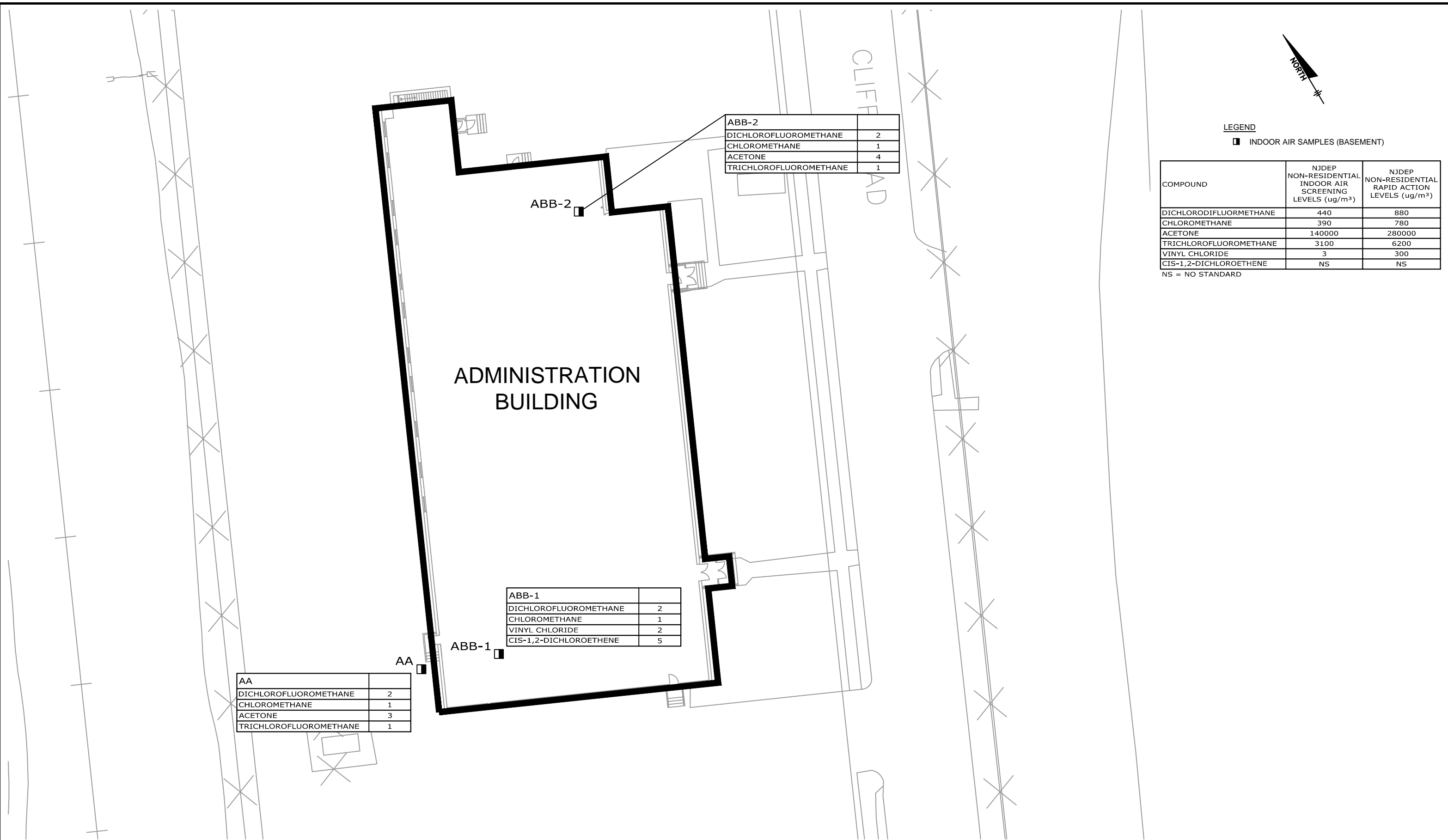
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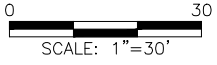
PROJECT:  
HESS CORPORATION  
FORMER PORT READING COMPLEX (HC-PR)  
750 CLIFF ROAD  
PORT READING, NEW JERSEY

TITLE:  
ADMINISTRATION BUILDING SUB-SLAB  
SAMPLE LOCATIONS AND ANALYTICAL  
RESULTS (2016)

FIGURE NO.  
6.2

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	SCALE:	DATE: 2/23/16	PROJECT: <b>HESS CORPORATION</b> FORMER PORT READING COMPLEX (HC-PR) 750 CLIFF ROAD PORT READING, NEW JERSEY	TITLE: <b>ADMINISTRATION BUILDING INDOOR AIR AND AMBIENT AIR SAMPLE LOCATIONS AND ANALYTICAL RESULTS (2016)</b>	FIGURE NO. <b>6.3</b>
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	CHECKED BY: JC	FILENAME: ADMINISTRATION BLDG DATA			
	LAYOUT: 3				

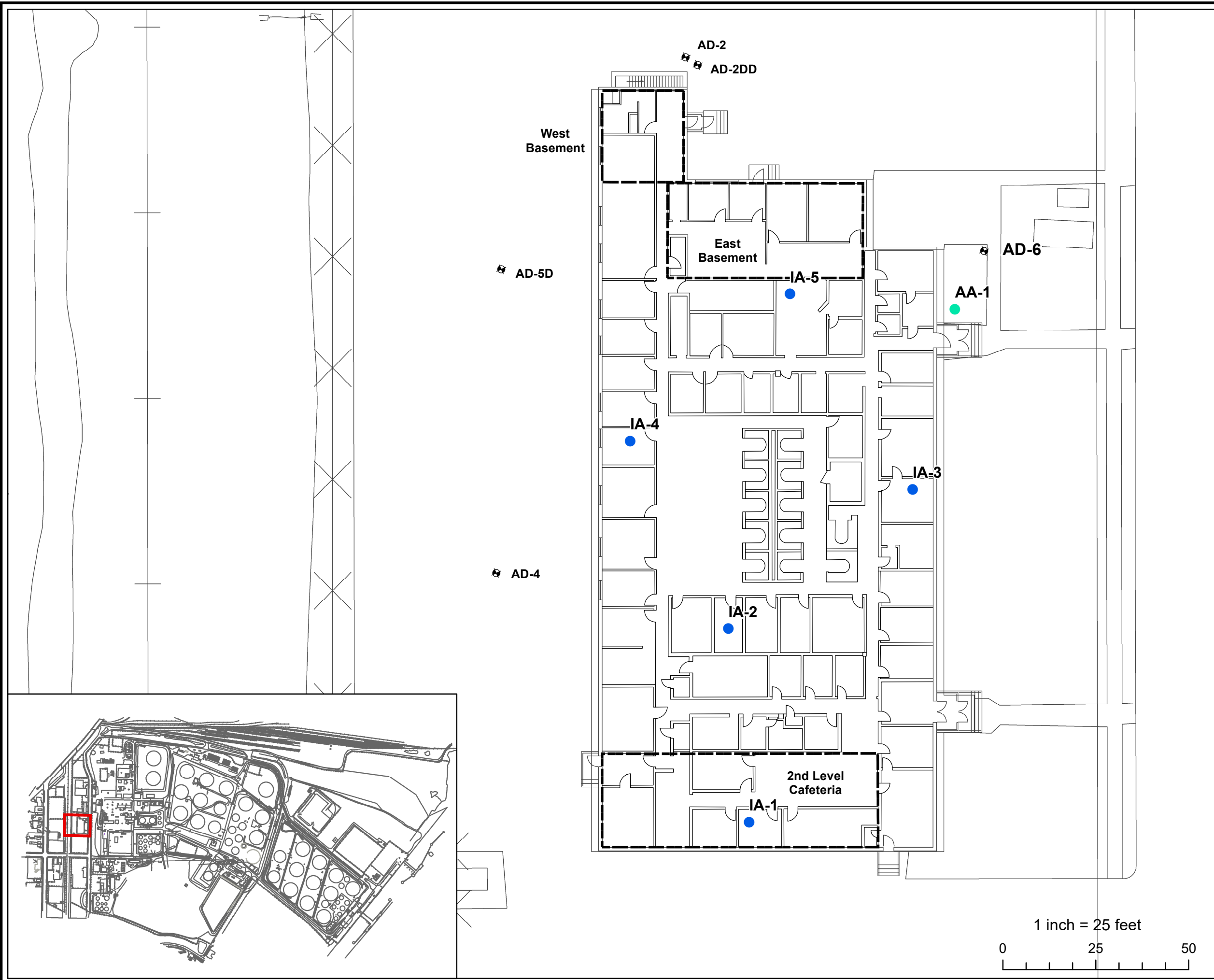
**Table 6.3**  
**2016 Summary of Soil Gas Analytical Results - Administration Building**  
**Hess Corporation - Port Reading Refinery**  
**750 Cliff Road**  
**Port Reading, Middlesex County, New Jersey**

LOCATION	NJ Non-Residential		ABSS-1	ABSS-2
SAMPLING DATE	Soil Gas Screening		1/30/2016	1/30/2016
LAB SAMPLE ID	Levels		L1602644-10	L1602644-11
NJ Volatile Organics in Air - Mansfield Lab				
Dichlorodifluoromethane	22000	ug/m3	3 U	84
Chloromethane	20000	ug/m3	1 U	10 U
Freon-114		ug/m3	4 U	30 U
Vinyl chloride	140	ug/m3	1 U	10 U
1,3-Butadiene	20	ug/m3	1 U	10 U
Bromomethane	1100	ug/m3	2 U	20 U
Chloroethane	2200000	ug/m3	1 U	320
Ethanol		ug/m3	870	230 U
Vinyl bromide	22	ug/m3	2 U	20 U
Acetone	6800000	ug/m3	43	60 U
Trichlorofluoromethane	150000	ug/m3	3 U	30 U
Isopropanol		ug/m3	570	30 U
1,1-Dichloroethene	44000	ug/m3	2 U	20 U
Tertiary butyl Alcohol		ug/m3	4 U	36 U
Methylene chloride	61000	ug/m3	6	40 U
3-Chloropropene	100	ug/m3	2 U	20 U
Carbon disulfide	150000	ug/m3	19	20 U
Freon-113	6600000	ug/m3	4 U	40 U
trans-1,2-Dichloroethene	13000	ug/m3	2 U	20 U
1,1-Dichloroethane	380	ug/m3	57	130
Methyl tert butyl ether	2400	ug/m3	2 U	20 U
2-Butanone	1100000	ug/m3	19	40 U
cis-1,2-Dichloroethene		ug/m3	2 U	20 U
Chloroform	27	ug/m3	3 U	20 U
Tetrahydrofuran		ug/m3	4 U	40 U
1,2-Dichloroethane	24	ug/m3	2 U	20 U
n-Hexane	150000	ug/m3	2 U	4900
1,1,1-Trichloroethane	1100000	ug/m3	26	60
Benzene	79	ug/m3	2 U	20 U
Carbon tetrachloride	100	ug/m3	3 U	30 U
Cyclohexane	1300000	ug/m3	2	26
1,2-Dichloropropane	61	ug/m3	2 U	20 U
Bromodichloromethane	34	ug/m3	4 U	30 U
1,4-Dioxane		ug/m3	2 U	20 U
Trichloroethene	150	ug/m3	3 U	30 U
2,2,4-Trimethylpentane		ug/m3	2 U	20 U
Methyl Methacrylate		ug/m3	5 U	50 U
Heptane		ug/m3	2 U	2700
cis-1,3-Dichloropropene	150	ug/m3	2 U	20 U
4-Methyl-2-pentanone	660000	ug/m3	5 U	50 U
trans-1,3-Dichloropropene	150	ug/m3	2 U	20 U
1,1,2-Trichloroethane	38	ug/m3	3 U	30 U
Toluene	1100000	ug/m3	5	18 U
Dibromochloromethane	43	ug/m3	5 U	40 U
1,2-Dibromoethane	38	ug/m3	4 U	40 U
Tetrachloroethene	2400	ug/m3	4 U	30 U
Chlorobenzene	11000	ug/m3	2 U	20 U
Ethylbenzene	250	ug/m3	4	29
p/m-Xylene		ug/m3	15	120
Bromoform	560	ug/m3	5 U	50 U
Styrene	220000	ug/m3	2 U	20 U
1,1,2,2-Tetrachloroethane	34	ug/m3	4 U	30 U
o-Xylene		ug/m3	5	29
2-Chlorotoluene		ug/m3	3 U	30 U
4-Ethyltoluene		ug/m3	3 U	69
1,3,5-Trimethylbenzene		ug/m3	3 U	290
1,2,4-Trimethylbenzene		ug/m3	3 U	350
1,3-Dichlorobenzene		ug/m3	23	30 U
1,4-Dichlorobenzene	56	ug/m3	3 U	30 U
1,2-Dichlorobenzene	44000	ug/m3	3 U	30 U
1,2,4-Trichlorobenzene	440	ug/m3	4 U	40 U
Hexachlorobutadiene	53	ug/m3	6 U	50 U



**Table 6.4**  
**2016 Summary of Indoor Air Analytical Results - Administration Building**  
**Hess Corporation - Port Reading Refinery**  
**750 Cliff Road**  
**Port Reading, Middlesex County, New Jersey**

LOCATION	NJ Non-Residential Rapid Action Level	NJ - Non-Residential Indoor Air Screening Level		ABB-1	ABB-2	AA
SAMPLING DATE				1/30/2016	1/30/2016	1/30/2016
LAB SAMPLE ID				L1602644-01	L1602644-02	L1602644-09
<b>NJ Volatile Organics in Air</b>						
Dichlorodifluoromethane	880	440	ug/m3	2	2	2
Chloromethane	780	390	ug/m3	1	1	1
Freon-114			ug/m3	1 U	1 U	1 U
Vinyl chloride	300	3	ug/m3	2	0.5 U	0.5 U
1,3-Butadiene	18	1	ug/m3	0.4 U	0.4 U	0.4 U
Bromomethane	44	22	ug/m3	0.8 U	0.8 U	0.8 U
Chloroethane	88000	44000	ug/m3	0.5 U	0.5 U	0.5 U
Ethanol			ug/m3	9 U	9 U	9 U
Vinyl bromide	26	2	ug/m3	0.9 U	0.9 U	0.9 U
Acetone	280000	140000	ug/m3	2 U	4	3
Trichlorofluoromethane	6200	3100	ug/m3	1 U	1	1
Isopropanol			ug/m3	1 U	1 U	1 U
1,1-Dichloroethene	1800	880	ug/m3	0.8 U	0.8 U	0.8 U
Tertiary butyl Alcohol			ug/m3	2 U	2 U	2 U
Methylene chloride	5200	1200	ug/m3	2 U	2 U	2 U
3-Chloropropene	8	2	ug/m3	0.6 U	0.6 U	0.6 U
Carbon disulfide	6200	3100	ug/m3	0.6 U	0.6 U	0.6 U
Freon-113	260000	130000	ug/m3	2 U	2 U	2 U
trans-1,2-Dichloroethene	520	260	ug/m3	0.8 U	0.8 U	0.8 U
1,1-Dichloroethane	800	8	ug/m3	0.8 U	0.8 U	0.8 U
Methyl tert butyl ether	4700	47	ug/m3	0.7 U	0.7 U	0.7 U
2-Butanone	44000	22000	ug/m3	1 U	1 U	1 U
cis-1,2-Dichloroethene			ug/m3	5	0.8 U	0.8 U
Chloroform	50	2	ug/m3	1 U	1 U	1 U
Tetrahydrofuran			ug/m3	1 U	1 U	1 U
1,2-Dichloroethane	50	2	ug/m3	0.8 U	0.8 U	0.8 U
n-Hexane	6200	3100	ug/m3	0.7 U	0.7 U	0.7 U
1,1,1-Trichloroethane	44000	22000	ug/m3	1 U	1 U	1 U
Benzene	200	2	ug/m3	0.6 U	0.6 U	0.6 U
Carbon tetrachloride	200	3	ug/m3	1 U	1 U	1 U
Cyclohexane	52000	26000	ug/m3	0.7 U	0.7 U	0.7 U
1,2-Dichloropropane	36	2	ug/m3	0.9 U	0.9 U	0.9 U
Bromodichloromethane	30	3	ug/m3	1 U	1 U	1 U
1,4-Dioxane			ug/m3	0.7 U	0.7 U	0.7 U
Trichloroethene	18	3	ug/m3	1 U	1 U	1 U
2,2,4-Trimethylpentane			ug/m3	0.9 U	0.9 U	0.9 U
Methyl Methacrylate			ug/m3	2 U	2 U	2 U
Heptane			ug/m3	0.8 U	0.8 U	0.8 U
cis-1,3-Dichloropropene	180	3	ug/m3	0.9 U	0.9 U	0.9 U
4-Methyl-2-pentanone	26000	13000	ug/m3	2 U	2 U	2 U
trans-1,3-Dichloropropene	180	3	ug/m3	0.9 U	0.9 U	0.9 U
1,1,2-Trichloroethane	3	3	ug/m3	1 U	1 U	1 U
Toluene	44000	22000	ug/m3	0.8 U	0.8 U	0.8 U
Dibromochloromethane	50	4	ug/m3	2 U	2 U	2 U
1,2-Dibromoethane	4	4	ug/m3	2 U	2 U	2 U
Tetrachloroethene	360	47	ug/m3	1 U	1 U	1 U
Chlorobenzene	440	220	ug/m3	0.9 U	0.9 U	0.9 U
Ethylbenzene	500	5	ug/m3	0.9 U	0.9 U	0.9 U
p/m-Xylene			ug/m3	2 U	2 U	2 U
Bromoform	1100	11	ug/m3	2 U	2 U	2 U
Styrene	8800	4400	ug/m3	0.9 U	0.9 U	0.9 U
1,1,2,2-Tetrachloroethane	20	3	ug/m3	1 U	1 U	1 U
2-Chlorotoluene			ug/m3	1 U	1 U	1 U
4-Ethyltoluene			ug/m3	1 U	1 U	1 U
1,3,5-Trimethylbenzene			ug/m3	1 U	1 U	1 U
1,2,4-Trimethylbenzene			ug/m3	1 U	1 U	1 U
1,3-Dichlorobenzene			ug/m3	1 U	1 U	1 U
1,4-Dichlorobenzene	100	3	ug/m3	1 U	1 U	1 U
1,2-Dichlorobenzene	1800	880	ug/m3	1 U	1 U	1 U
1,2,4-Trichlorobenzene	18	9	ug/m3	1 U	1 U	1 U
Hexachlorobutadiene	60	5	ug/m3	2 U	2 U	2 U



### LEGEND

- Monitoring Well
- Vapor Intrusion Sample Location
  - Ambient Air Sample Location
  - Indoor Air Sample Location

### FIGURE: 6.4


July 2020

### Administration Building

### Vapor Intrusion Sample Locations

HESS CORPORATION  
FORMER PORT READING COMPLEX  
750 CLIFF ROAD  
PORT READING, NEW JERSEY

Project #:	1114J01	Drawn:	9/17/2020
SRP PI#:	006148	Drawn By:	RC



**Earth Systems**

Environmental Engineering

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This map was developed using New Jersey Department of Environmental Protection Geographic Information System Digital Data, but this secondary product has not been verified by NJDEP and is not state Authorized. Source: NAD 1983 (2011) New Jersey State Plane FIPS 2900 US FT.

Table 6.5  
Hess Corporation Former Port Reading Terminal  
750 Cliff Road  
Port Reading, New Jersey  
July 2020 Indoor Air Sampling Analytical Results - Administration Building

Client Sample ID:		NJ Vapor Intrusion Nonresidential Indoor Air (NJAC 7:26E 3/13)	NJ Vapor Intrusion Rapid Action Levels - Nonresidential (NJAC 7:26E 3/13)	IA-1	IA-2	IA-3	IA-4	IA-5	AA-1
Lab Sample ID:				JD10661-1	JD10661-2	JD10661-3	JD10661-4	JD10661-5	JD10661-6
Date Sampled:				7/23/2020	7/23/2020	7/23/2020	7/23/2020	7/23/2020	7/23/2020
Matrix:				Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air	Indoor Air
<b>MS Volatiles TO-15</b>									
Acetone	ug/m3	140000	280000	68.7	22	28.5	25.2	31.8	11
1,3-Butadiene	ug/m3	1	18	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)	ND (0.10)
Benzene	ug/m3	2	200	0.73	0.35 J	0.58 J	0.54 J	0.67	0.42 J
Bromodichloromethane	ug/m3	3	30	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)
Bromoform	ug/m3	11	1100	ND (0.38)	ND (0.38)	ND (0.38)	ND (0.38)	ND (0.38)	ND (0.38)
Bromomethane	ug/m3	22	44	ND (0.085)	ND (0.085)	ND (0.085)	ND (0.085)	ND (0.085)	ND (0.085)
Bromoethene	ug/m3	2	26	ND (0.096)	ND (0.096)	ND (0.096)	ND (0.096)	ND (0.096)	ND (0.096)
Benzyl Chloride	ug/m3	-	-	ND (0.29)	ND (0.29)	ND (0.29)	ND (0.29)	ND (0.29)	ND (0.29)
Carbon disulfide	ug/m3	3100	6200	ND (0.075)	ND (0.075)	ND (0.075)	ND (0.075)	ND (0.075)	ND (0.075)
Chlorobenzene	ug/m3	220	440	ND (0.12)	ND (0.12)	ND (0.12)	ND (0.12)	ND (0.12)	ND (0.12)
Chloroethane	ug/m3	44000	88000	ND (0.13)	ND (0.13)	ND (0.13)	ND (0.13)	ND (0.13)	ND (0.13)
Chloroform	ug/m3	2	50	ND (0.098)	ND (0.098)	ND (0.098)	0.98	ND (0.098)	ND (0.098)
Chloromethane	ug/m3	390	780	1.4	0.83	1.4	1.3	1.5	1.2
3-Chloropropene	ug/m3	2	8	ND (0.13)	ND (0.13)	ND (0.13)	ND (0.13)	ND (0.13)	ND (0.13)
2-Chlorotoluene	ug/m3	-	-	ND (0.13)	ND (0.13)	ND (0.13)	ND (0.13)	ND (0.13)	ND (0.13)
Carbon tetrachloride	ug/m3	3	200	ND (0.15)	ND (0.15)	ND (0.15)	1.0 J	0.55 J	0.55 J
Cyclohexane	ug/m3	26000	52000	0.69	ND (0.076)	0.45 J	ND (0.076)	0.41 J	ND (0.076)
1,1-Dichloroethane	ug/m3	8	800	ND (0.049)	ND (0.049)	ND (0.049)	ND (0.049)	ND (0.049)	ND (0.049)
1,1-Dichloroethylene	ug/m3	880	1800	ND (0.067)	ND (0.067)	ND (0.067)	ND (0.067)	ND (0.067)	ND (0.067)
1,2-Dibromoethane	ug/m3	4	4	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)
1,2-Dichloroethane	ug/m3	2	50	ND (0.085)	ND (0.085)	ND (0.085)	ND (0.085)	ND (0.085)	ND (0.085)
1,2-Dichloropropane	ug/m3	2	36	ND (0.088)	ND (0.088)	ND (0.088)	ND (0.088)	ND (0.088)	ND (0.088)
1,4-Dioxane	ug/m3	-	-	ND (0.19)	ND (0.19)	ND (0.19)	ND (0.19)	ND (0.19)	ND (0.19)
Dichlorodifluoromethane	ug/m3	440	880	2.5	1.4	2.5	2.5	2.6	2.7
Dibromochloromethane	ug/m3	4	50	ND (0.28)	ND (0.28)	ND (0.28)	ND (0.28)	ND (0.28)	ND (0.28)
trans-1,2-Dichloroethylene	ug/m3	260	520	ND (0.029)	ND (0.029)	ND (0.029)	ND (0.029)	ND (0.029)	ND (0.029)
cis-1,2-Dichloroethylene	ug/m3	-	-	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)	ND (0.048)
cis-1,3-Dichloropropene	ug/m3	-	-	ND (0.091)	ND (0.091)	ND (0.091)	ND (0.091)	ND (0.091)	ND (0.091)
m-Dichlorobenzene	ug/m3	-	-	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.11)
o-Dichlorobenzene	ug/m3	880	1800	ND (0.13)	ND (0.13)	ND (0.13)	ND (0.13)	ND (0.13)	ND (0.13)
p-Dichlorobenzene	ug/m3	3	100	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.11)
trans-1,3-Dichloropropene	ug/m3	-	-	ND (0.091)	ND (0.091)	ND (0.091)	ND (0.091)	ND (0.091)	ND (0.091)
Ethanol	ug/m3	-	-	190 E	103 E	187 E	147 E	176 E	11
Ethylbenzene	ug/m3	5	500	1	ND (0.065)	0.52 J	0.43 J	0.61 J	ND (0.065)
Ethyl Acetate	ug/m3	-	-	35	8.6	12	8.6	7.2	6.1
4-Ethyltoluene	ug/m3	-	-	ND (0.15)	ND (0.15)	ND (0.15)	ND (0.15)	ND (0.15)	ND (0.15)
Freon 113	ug/m3	130000	260000	ND (0.13)	ND (0.13)	ND (0.13)	ND (0.13)	ND (0.13)	ND (0.13)
Freon 114	ug/m3	-	-	ND (0.13)	ND (0.13)	ND (0.13)	ND (0.13)	ND (0.13)	ND (0.13)
Heptane	ug/m3	-	-	8.2	1.2	2.5	1.7	1.8	ND (0.074)
Hexachlorobutadiene	ug/m3	5	60	ND (0.49)	ND (0.49)	ND (0.49)	ND (0.49)	ND (0.49)	ND (0.49)
Hexane	ug/m3	3100	6200	1.5	0.7	1.2	1.7	1.2	3
2-Hexanone	ug/m3	-	-	ND (0.15)	ND (0.15)	ND (0.15)	ND (0.15)	ND (0.15)	ND (0.15)
Isopropyl Alcohol	ug/m3	-	-	13	8.6	13	13	23	2.7
Methylene chloride	ug/m3	1200	5200	ND (0.052)	ND (0.052)	ND (0.052)	4.5	ND (0.052)	21
Methyl ethyl ketone	ug/m3	22000	44000	7.7	1.8	2.9	2.5	3.2	1.2
Methyl Isobutyl Ketone	ug/m3	13000	26000	1.4	ND (0.15)	ND (0.15)	ND (0.15)	1.3	ND (0.15)
Methyl Tert Butyl Ether	ug/m3	47	4700	ND (0.069)	ND (0.069)	ND (0.069)	ND (0.069)	ND (0.069)	ND (0.069)
Methylmethacrylate	ug/m3	-	-	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)	ND (0.14)
Propylene	ug/m3	-	-	ND (0.027)	ND (0.027)	ND (0.027)	ND (0.027)	3.1	ND (0.027)
Styrene	ug/m3	4400	8800	4.7	ND (0.081)	ND (0.081)	ND (0.081)	ND (0.081)	ND (0.081)
1,1,1-Trichloroethane	ug/m3	22000	44000	ND (0.18)	ND (0.18)	ND (0.18)	ND (0.18)	0.60 J	ND (0.18)
1,1,2,2-Tetrachloroethane	ug/m3	3	20	ND (0.19)	ND (0.19)	ND (0.19)	ND (0.19)	ND (0.19)	ND (0.19)
1,1,2-Trichloroethane	ug/m3	3	3	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.16)
1,2,4-Trichlorobenzene	ug/m3	9	18	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)	ND (0.66)
1,2,4-Trimethylbenzene	ug/m3	-	-	2.6	ND (0.16)	0.74 J	0.74 J	1.4	ND (0.16)
1,3,5-Trimethylbenzene	ug/m3	-	-	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.17)
2,2,4-Trimethylpentane	ug/m3	-	-	1.5	0.70 J	1.2	0.98	1.1	0.51 J
Tertiary Butyl Alcohol	ug/m3	-	-	75.2	0.73	ND (0.042)	ND (0.042)	1	ND (0.042)
Tetrachloroethylene	ug/m3	47	360	0.88	0.45	1.4	1.2	0.81	0.81
Tetrahydrofuran	ug/m3	-	-	83.2	0.38 J	0.59	ND (0.15)	0.56 J	ND (0.15)
Toluene	ug/m3	22000	44000	9	1.5	2.3	2.1	2.3	1.1
Trichloroethylene	ug/m3	3	18	0.23	ND (0.10)	0.45	0.47	0.3	0.97
Trichlorofluoromethane	ug/m3	3100	6200	1.5	0.84 J	1.4	2.6	1.5	5.4
Vinyl chloride	ug/m3	3	300	ND (0.056)	ND (0.056)	ND (0.056)	ND (0.056)	ND (0.056)	ND (0.056)
Vinyl Acetate	ug/m3	-	-	ND (0.12)	ND (0.12)	ND (0.12)	ND (0.12)	ND (0.12)	ND (0.12)
m,p-Xylene	ug/m3	440	880	2.6	1.1	1.9	1.6	2.3	0.78 J
o-Xylene	ug/m3	440	880	1.3	0.48 J	0.78 J	0.65 J	0.87	ND (0.074)
Xylenes (total)	ug/m3	440	880	3.9	1.6	2.6	2.2	3.1	0.78 J

# **ATTACHMENT 7**

## **SURFACE WATER & SEDIMENT**

### **FIGURES & TABLES**

**Figure 7.1 – Surface Water Sampling Locations (Eco Exceedances Highlighted)**

**Table 7.1 – Summary of Surface Water Analytical Results – Detention Basin**

**Table 7.2 – Summary of Surface Water Analytical Results – Smith Creek & Smith Creek Pond**

**Figure 7.2 – Detention Basin Sediment Results – VOCs**

**Figure 7.3 – Smith Creek & Smith Creek Pond Sediment Results – VOCs**

**Figure 7.4 – Detention Basin Deep Sediment Results**

**Figure 7.5 – Smith Creek & Smith Creek Pond Deep Sediment Results**

**Figure 7.6 – Detention Basin Sediment Results – SVOCs/EPH**

**Figure 7.7 – Smith Creek & Smith Creek Pond Sediment Results – SVOCs/EPH**

**Figure 7.8 – Detention Basin Sediment Results – Metals**

**Figure 7.9 – Smith Creek & Smith Creek Pond Sediment Results – Metals**

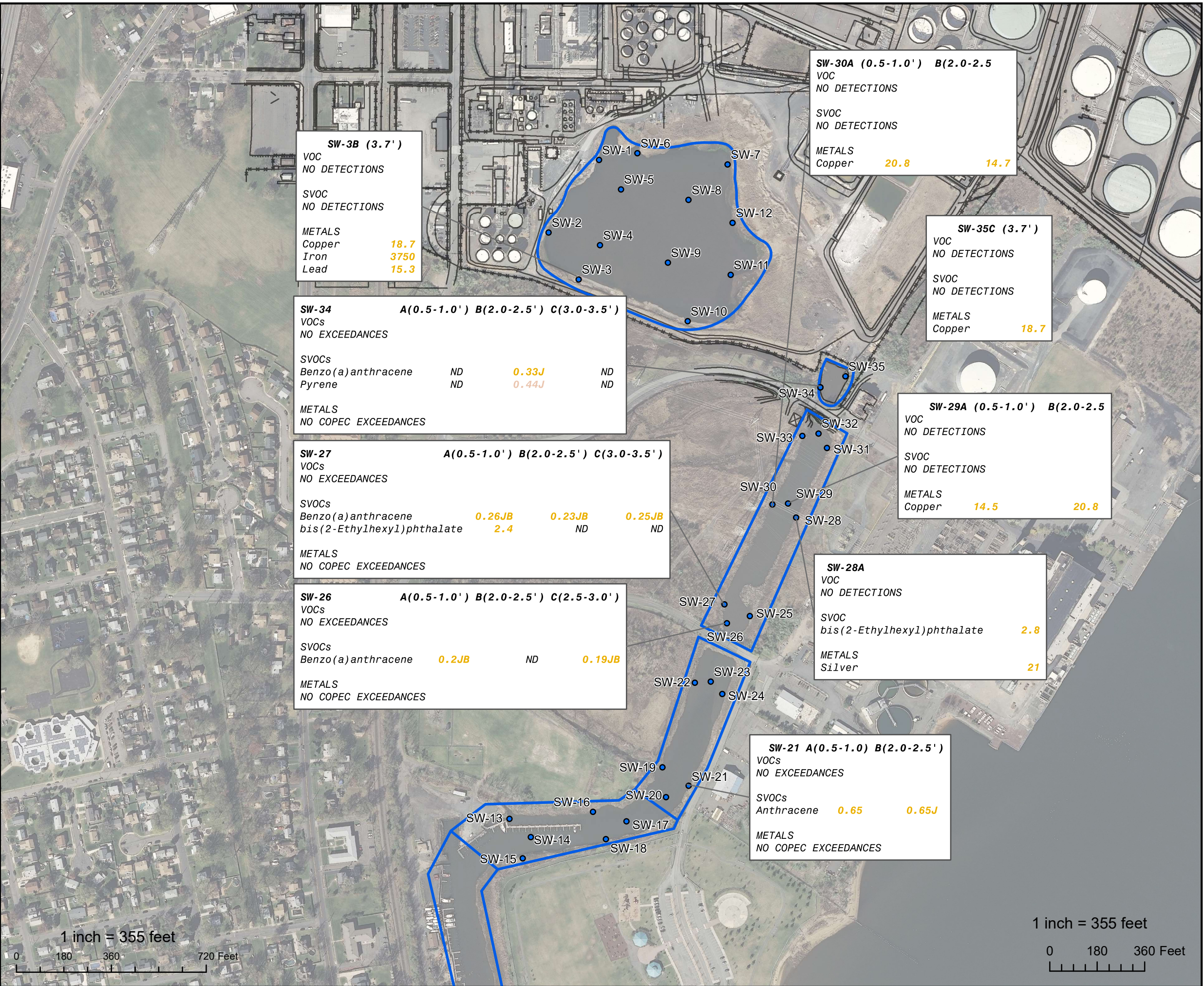
**Table 7.3 – Summary of Sediment Analytical Results (Detention Basin)**

**Table 7.4 – Summary of Sediment Analytical Results (Smith Creek & Smith Creek Pond)**

**Table 7.5 – Summary of Analytical Results (Deep Sediment)**



Document Path: A:\HESS Projects\1114J00 - Port Reading Hess\1114J01 - Sitewide\GIS\Port Reading - Smith Creek and Detention Basin Eco Results - Surface Water1.mxd



LEGEND

- Surface Water Sample Location
- Smith Creek and Detention Basin

NOTES:

Over Criteria = ORANGE  
- All results provided in parts per billion (ug/L)  
<sup>1</sup>Expressed as a function of water hardness; an average water hardness of 108.9 mg/L was calculated and applied to the screening value calculation  
<sup>2</sup>USEPA National Recommended Water Quality Criterion  
<sup>3</sup>USEPA Region 3 BTAG marine or freshwater screening benchmark (USEPA 2015)  
J - Estimated Value  
B - Found in Blank  
ND - Non Detect  
SW-1 thru SW-12: Detention Basin - NJDEP Ecological Aquatic Life Freshwater Chronic Criterion  
SW-13 thru SW-33: Smith's Creek - NJDEP Ecological Saline Aquatic Life Chronic Criterion  
SW-33 thru SW-35: Smith's Creek Pond - NJDEP Ecological Saline Aquatic Life Chronic Criterion

SURFACE WATER  
ANALYTICAL EXCEEDANCES  
VOC, SVOC, METALS

Hess Former Port Reading Complex  
750 Cliff Road  
Port Reading, New Jersey

FIGURE: 7.1

Drawn By: AE Date : 01/17/2020



Environmental Engineering

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Table 7-1  
Detention Basin Surface Water - Human Health  
Former Hess Port Reading Terminal Site  
Port Reading, New Jersey

Client Sample ID:		NJDEP Ecological Surface Water- Freshwater Human Health Screening	SS-1B	SS-1M	SS-1T	SS-2B	SS-2M	SS-2T	SS-3B	SS-3M	SS-3T	SS-4B
Lab Sample ID:			JC77633-3	JC77633-4	JC77633-5	JC77633-6	JC77633-7	JC77633-8	JC77633-9	JC77633-10	JC77633-11	JC77633-12
Date Sampled:			11/8/2018	11/8/2018	11/8/2018	11/8/2018	11/8/2018	11/8/2018	11/8/2018	11/8/2018	11/8/2018	11/8/2018
Matrix:			Water	Water	Water	Water	Water	Water	Water	Water	Water	Water
Metals Analysis												
Aluminum	ug/l	NC	<200	507	<200	<200	<200	<200	1420	<200	<200	<200
Arsenic	ug/l	0.017	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	3.1	<3.0	<3.0	<3.0
Calcium	ug/l	NT	26800	27000	27100	27300	26300	27500	29100	27300	27600	27900
Chromium	ug/l	92	<10	<10	<10	<10	<10	<10	30	<10	<10	<10
Copper	ug/l	1,300	<10	<10	<10	<10	<10	<10	18.7	<10	<10	<10
Iron	ug/l	NC	187	507	154	<100	<100	<100	3750	<100	120	149
Lead	ug/l	5.00	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	15.3	<3.0	<3.0	<3.0
Magnesium	ug/l	NT	10300	10400	10300	10300	10000	10400	11100	10300	10400	10500
Manganese	ug/l	50(e)	16.4	28.5	15.7	16	15	15.8	137	20	19.9	33.4
Sodium	ug/l	NT	87900	88400	89200	89200	85900	89900	90100	89000	90200	90500
Zinc	ug/l	7,400	<20	<20	<20	<20	<20	<20	40.1	<20	<20	<20
General Chemistry												
Chloride	ug/l	250,000	100000	96700	98500	98200	98100	97400	95500	98500	97400	98300
Nitrogen, Nitrate	ug/l	NC	<110 <sup>e</sup>	<110 <sup>e</sup>	<110 <sup>e</sup>	<110 <sup>e</sup>	<110 <sup>e</sup>	150 <sup>e</sup>	<110 <sup>e</sup>	<110 <sup>e</sup>	<110 <sup>e</sup>	<110 <sup>e</sup>
Nitrogen, Nitrate + Nitrite	ug/l	NC	<100	<100	<100	<100	<100	150	<100	<100	<100	<100
Solids, Total Dissolved	ug/l	NC	321000	296000	299000	268000	276000	310000	305000	306000	300000	320000

Table 7-1  
Detention Basin Surface Water - Human Health  
Former Hess Port Reading Terminal Site  
Port Reading, New Jersey

Client Sample ID:		NJDEP Ecological Surface Water- Freshwater Human Health Screening	SS-4M	SS-4T	SS-5B	SS-5M	SS-5T	SS-6B	SS-6M	SS-6T	SS-7B	SS-7M
Lab Sample ID:			JC77633-13	JC77633-14	JC77633-15	JC77633-16	JC77633-17	JC77633-18	JC77633-19	JC77633-20	JC77633-21	JC77633-22
Date Sampled:			11/8/2018	11/8/2018	11/8/2018	11/8/2018	11/8/2018	11/8/2018	11/8/2018	11/8/2018	11/8/2018	11/8/2018
Matrix:			Water	Water	Water	Water	Water	Water	Water	Water	Water	Water
Metals Analysis												
Aluminum	ug/l	NC	<200	<200	<200	<200	<200	320	<200	<200	566	<200
Arsenic	ug/l	0.017	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Calcium	ug/l	NT	27300	27200	26100	26800	27300	26300	26800	26500	27200	26100
Chromium	ug/l	92	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Copper	ug/l	1,300	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Iron	ug/l	NC	<100	<100	102	157	<100	581	<100	<100	751	189
Lead	ug/l	5.00	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	3.3	<3.0
Magnesium	ug/l	NT	10300	10200	10100	10200	10300	10100	10100	10000	10300	9830
Manganese	ug/l	50(e)	19.2	18.6	17.4	16	15.3	21.6	<15	<15	21	<15
Sodium	ug/l	NT	89000	88800	87200	88400	89800	87200	88500	87600	88800	86200
Zinc	ug/l	7,400	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
General Chemistry												
Chloride	ug/l	250,000	99100	100000	97200	98100	96900	95300	97600	100000	96600	102000
Nitrogen, Nitrate	ug/l	NC	<110 <sup>e</sup>	<110 <sup>e</sup>	<110 <sup>e</sup>	<110 <sup>e</sup>	<110 <sup>e</sup>	<110 <sup>e</sup>	130 <sup>e</sup>	<110 <sup>e</sup>	<110 <sup>e</sup>	<110 <sup>e</sup>
Nitrogen, Nitrate + Nitrite	ug/l	NC	<100	<100	<100	<100	100	<100	130	<100	<100	<100
Solids, Total Dissolved	ug/l	NC	292000	280000	282000	296000	282000	258000	288000	302000	275000	292000

Table 7-1  
Detention Basin Surface Water - Human Health  
Former Hess Port Reading Terminal Site  
Port Reading, New Jersey

Client Sample ID:		NJDEP Ecological Surface Water- Freshwater Human Health Screening	SS-7T	SS-8B	SS-8M	SS-8T	SS-9B	SS-9M	SS-9T	SS-10B	SS-10M	SS-10T
Lab Sample ID:			JC77633-23	JC77633-24	JC77633-25	JC77633-26	JC77633-27	JC77633-28	JC77633-29	JC77633-30	JC77633-31	JC77633-32
Date Sampled:			11/8/2018	11/8/2018	11/8/2018	11/8/2018	11/8/2018	11/8/2018	11/8/2018	11/8/2018	11/8/2018	11/8/2018
Matrix:			Water	Water	Water	Water	Water	Water	Water	Water	Water	Water
Metals Analysis												
Aluminum	ug/l	NC	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200
Arsenic	ug/l	0.017	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Calcium	ug/l	NT	25600	26600	26500	26900	26900	25400	27700	26600	26600	26800
Chromium	ug/l	92	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Copper	ug/l	1,300	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Iron	ug/l	NC	<100	<100	132	<100	<100	<100	<100	106	137	<100
Lead	ug/l	5.00	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Magnesium	ug/l	NT	9690	10000	9940	10100	10100	10100	10400	9980	9930	10000
Manganese	ug/l	50(e)	<15	<15	15.5	<15	<15	<15	<15	21.5	15.9	15.3
Sodium	ug/l	NT	84900	88500	88300	89000	89200	84600	91600	87600	87700	88600
Zinc	ug/l	7,400	<20	<20	<20	<20	<20	<20	<20	<20	<20	<20
General Chemistry												
Chloride	ug/l	250,000	102000	102000	102000	102000	103000	102000	102000	101000	102000	102000
Nitrogen, Nitrate	ug/l	NC	<110 <sup>e</sup>	<110 <sup>e</sup>	<110 <sup>e</sup>	<110 <sup>e</sup>	<110 <sup>e</sup>	<110 <sup>e</sup>	<110 <sup>e</sup>	<110 <sup>e</sup>	<110 <sup>e</sup>	<110 <sup>e</sup>
Nitrogen, Nitrate + Nitrite	ug/l	NC	<100	<100	<100	<100	<100	<100	<100	<100	<100	<100
Solids, Total Dissolved	ug/l	NC	278000	274000	264000	284000	288000	290000	264000	235000	274000	276000



Table 7-1  
Detention Basin Surface Water - Human Health  
Former Hess Port Reading Terminal Site  
Port Reading, New Jersey

Client Sample ID:		NJDEP Ecological Surface Water- Freshwater Human Health Screening	SS-11B	SS-11M	SS-11T	SS-12B	SS-12M	SS-12T
Lab Sample ID:			JC77633-33	JC77633-34	JC77633-35	JC77633-36	JC77633-37	JC77633-38
Date Sampled:			11/8/2018	11/8/2018	11/8/2018	11/8/2018	11/8/2018	11/8/2018
Matrix:			Water	Water	Water	Water	Water	Water
Metals Analysis								
Aluminum	ug/l	NC	268	<200	<200	<200	<200	<200
Arsenic	ug/l	0.017	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Calcium	ug/l	NT	27000	26500	26400	25800	26500	27200
Chromium	ug/l	92	23.6	<10	<10	<10	<10	<10
Copper	ug/l	1,300	<10	<10	<10	<10	<10	<10
Iron	ug/l	NC	468	102	100	<100	<100	<100
Lead	ug/l	5.00	<3.0	<3.0	<3.0	<3.0	<3.0	<3.0
Magnesium	ug/l	NT	10200	9920	9890	9690	9950	10300
Manganese	ug/l	50(e)	20.5	<15	<15	<15	<15	<15
Sodium	ug/l	NT	89200	88000	87700	85500	88000	90500
Zinc	ug/l	7,400	<20	<20	<20	<20	<20	<20
General Chemistry								
Chloride	ug/l	250,000	102000	102000	103000	102000	102000	103000
Nitrogen, Nitrate	ug/l	NC	160 <sup>e</sup>	<110 <sup>e</sup>	<110 <sup>e</sup>	<110 <sup>e</sup>	<110 <sup>e</sup>	130 <sup>e</sup>
Nitrogen, Nitrate + Nitrite	ug/l	NC	160	<100	<100	<100	<100	130
Solids, Total Dissolved	ug/l	NC	278000	266000	296000	272000	290000	287000

(a) Criteria as listed at (f)3 below as formula  
(b) Criteria as listed at (f)4 below as formula  
(d) Criterion is expressed as a function of the Water Effect Ratio (WER). For criterion in the table, WER equates to the default value of 1.0.  
(e) EPA Human Health for the Consumption of Water and Organism  
(fc) Criteria expressed as free cyanide (as CN)/L  
(h) Human health noncarcinogen  
(hc) Human health carcinogen  
(s) Dissolved criterion  
(T) Total recoverable criterion  
e - Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)  
NT - Non Toxic  
NC - No Criteria  
BLUE: Compound Detected, No Criteria  
YELLOW: Non Detect Result with MDL > Criteria  
GREEN: Compound Detected, Non-Toxic  
ORANGE: Exceedance, Result > Criteria

Table 7-2  
Smith Creek and Pond Surface Water Human Health  
Former Hess Port Reading Terminal Site  
Port Reading, New Jersey

Client Sample ID:		NJDEP Ecological Surface Water- Freshwater Human Health Screening Criterion	NJDEP Ecological Surface Water- Saline Human Health Screening Criterion	SW-13A	SW-13B	SW-13C	SW-14A	SW-14B	SW-14C	SW-15A	SW-15B	SW-15C	SW-16A	SW-16B	SW-16C	SW-17A	SW-17B	SW-17C
Lab Sample ID:				JC83457-1	JC83457-2	JC83457-3	JC83457-4	JC83457-5	JC83457-6	JC83457-7	JC83457-8	JC83457-9	JC83501-3	JC83501-4	JC83501-5	JC83501-6	JC83501-7	JC83501-8
Date Sampled:				2/26/2019	2/26/2019	2/26/2019	2/26/2019	2/26/2019	2/26/2019	2/26/2019	2/26/2019	2/26/2019	2/27/2019	2/27/2019	2/27/2019	2/27/2019	2/27/2019	2/27/2019
Matrix:				Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water

MS Volatiles (SW846 8260C)																		
Methylcyclohexane	ug/l	NC	NC	ND (0.60)	ND (0.60)	ND (0.60)	ND (0.60)	ND (0.60)	ND (0.60)	ND (0.60)	ND (0.60)	ND (0.60)	ND (0.60)	ND (0.60)	ND (0.60)	ND (0.60)	ND (0.60)	ND (0.60)
Toluene	ug/l	1300	15000	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)
m,p-Xylene	ug/l	NC	NC	ND (0.78)	ND (0.78)	ND (0.78)	ND (0.78)	ND (0.78)	ND (0.78)	ND (0.78)	ND (0.78)	ND (0.78)	ND (0.78)	ND (0.78)	ND (0.78)	ND (0.78)	ND (0.78)	ND (0.78)
o-Xylene	ug/l	NC	NC	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)
Xylene (total)	ug/l	NC	NC	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)

MS Semi-volatiles (SW846 8270D)																		
Anthracene	ug/l	8300	40000	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.21)	ND (0.20)	ND (0.20)	ND (0.21)	ND (0.20)	ND (0.21)	ND (0.20)	ND (0.21)
Benzo(a)anthracene	ug/l	NC	NC	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.21)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.21)	ND (0.20)	ND (0.20)	ND (0.21)	ND (0.20)	ND (0.21)	ND (0.21)	ND (0.21)
Chrysene	ug/l	4	18	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.18)	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.18)	ND (0.17)	ND (0.18)
bis(2-Ethylhexyl)phthalate	ug/l	1.2	2.2	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.7)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.7)	ND (1.6)	ND (1.7)
Dibenzofuran	ug/l	NC	NC	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.22)	ND (0.21)	ND (0.21)	ND (0.22)	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.22)
Fluoranthene	ug/l	130	140	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.17)	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.17)	ND (0.16)	ND (0.16)	ND (0.17)	ND (0.16)	ND (0.17)	ND (0.17)	ND (0.17)
Phenanthrene	ug/l	NC	NC	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.18)	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.18)	ND (0.17)	ND (0.18)
Pyrene	ug/l	830	4,000	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.22)	ND (0.21)	ND (0.21)	ND (0.22)	ND (0.21)	ND (0.22)	ND (0.21)	ND (0.22)

Metals Analysis																		
Aluminum	ug/l	NC	NC	<200	200	<200	<200	226	298	201	256	301	<200	<200	<200	<200	<200	<200
Calcium <sup>1</sup>	ug/l	NT	NT	241000	242000	246000	233000	244000	248000	244000	243000	241000	229000	233000	233000	231000	223000	231000
Copper	ug/l	1300	NC	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Iron	ug/l	NC	NC	380	333	329	359	365	479	357	355	437	335	370	333	539	401	363
Magnesium <sup>1</sup>	ug/l	NT	NT	719000	722000	742000	697000	738000	749000	737000	734000	726000	677000	692000	691000	685000	660000	685000
Manganese	ug/l	NC	100	68.5	68.2	66.3	67.8	60.7	61.8	66.9	62.8	60.9	66.4	67.2	66.8	74.4	69	68.7
Potassium	ug/l	NC	NC	219000	220000	225000	212000	224000	228000	222000	223000	221000	207000	211000	212000	209000	202000	210000
Silver	ug/l	170	40,000	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Sodium	ug/l	NT	NT	5980000	6040000	6270000	5690000	6000000	5980000	5860000	5980000	5850000	5620000	5580000	5420000	5350000	5390000	5220000

General Chemistry																		
Alkalinity, Total as CaCO3	mg/l	NC	NC	103 <sup>k</sup>	97.8 <sup>k</sup>	97.8 <sup>k</sup>	104 <sup>k</sup>	104 <sup>k</sup>	91.5 <sup>k</sup>	98.8 <sup>k</sup>	96.7 <sup>k</sup>	97.2 <sup>k</sup>	102 <sup>k</sup>	99.8 <sup>k</sup>	59.8 <sup>k</sup>	97.8 <sup>k</sup>	103 <sup>k</sup>	105 <sup>k</sup>
Chloride <sup>2</sup>	mg/l	250000	NC	9960 <sup>f</sup>	10100 <sup>f</sup>	10300 <sup>f</sup>	9810 <sup>f</sup>	10400 <sup>f</sup>	10400 <sup>f</sup>	9920 <sup>f</sup>	10200 <sup>f</sup>	10300 <sup>f</sup>	9310 <sup>f</sup>	9230 <sup>f</sup>	9260 <sup>f</sup>	9220 <sup>f</sup>	9260 <sup>f</sup>	9300 <sup>f</sup>
Hardness, Total as CaCO3	mg/l	NC	NC	3300	3950	3650	3380	3500	3630	3880	3630	3450	3290	3380	3280	3150	3350	3080
Nitrogen, Ammonia	mg/l	NC	NC	0.34	0.33	0.33	0.33	0.33	0.34	0.32	0.33	0.34	0.44	0.37	0.36	0.34	0.32	0.34
Nitrogen, Nitrate	mg/l	NC	NC	0.32 <sup>m</sup>	0.45 <sup>m</sup>	0.39 <sup>m</sup>	0.60 <sup>m</sup>	0.54 <sup>m</sup>	0.51 <sup>m</sup>	0.31 <sup>m</sup>	0.31 <sup>m</sup>	0.61 <sup>m</sup>	0.40 <sup>m</sup>	0.35 <sup>m</sup>	0.34 <sup>m</sup>	0.33 <sup>m</sup>	0.35 <sup>m</sup>	0.36 <sup>m</sup>
Nitrogen, Nitrate + Nitrite	mg/l	NC	NC	0.35	0.48	0.42	0.63	0.57	0.54	0.34	0.34	0.64	0.42	0.38	0.37	0.35	0.37	0.39
Nitrogen, Nitrite	mg/l	NC	NC	0.031	0.031	0.028	0.029	0.031	0.029	0.029	0.03	0.027	0.017	0.032	0.028	0.019	0.02	0.035
Solids, Total Dissolved	mg/l	NC	NC	17800	19300	18600	18200	18500	19100	18400	19100	18600	17200	18400	17300	17400	17400	17400

NC: No Criteria  
BLUE: Compound Detected, No Criteria  
GREEN: Compound Detected, Non-Toxic  
ORANGE: Exceedance, Result > Criteria

Table 7-2  
Smith Creek and Pond Surface Water Human Health  
Former Hess Port Reading Terminal Site  
Port Reading, New Jersey

Client Sample ID:		NJDEP Ecological Surface Water- Freshwater Human Health Screening Criterion	NJDEP Ecological Surface Water- Saline Human Health Screening Criterion	SW-18A	SW-18B	SW-18C	SW-19A	SW-19B	SW-19C	SW-20A	SW-20B	SW-20C	SW-21A	SW-21B	SW-21C	SW-22A	SW-22B	SW-22C
Lab Sample ID:				JC83501-9	JC83501-10	JC83501-11	JC83595-3	JC83595-4	JC83595-5	JC83595-6	JC83595-7	JC83595-8	JC83595-9	JC83595-10	JC83595-11	JC83841-2	JC83841-3	JC83841-4
Date Sampled:				2/27/2019	2/27/2019	2/27/2019	2/28/2019	2/28/2019	2/28/2019	2/28/2019	2/28/2019	2/28/2019	2/28/2019	2/28/2019	2/28/2019	3/5/2019	3/5/2019	3/5/2019
Matrix:				Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water

MS Volatiles (SW846 8260C)																		
Methylcyclohexane	ug/l	NC	NC	ND (0.60)	ND (0.60)	ND (0.60)	ND (0.60)	ND (0.60)	ND (0.60)	ND (0.60)	ND (0.60)	ND (0.60)	ND (0.60)	ND (0.60)	ND (0.60)	ND (0.60)	ND (0.60)	ND (0.60)
Toluene	ug/l	1300	15000	0.83 J	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)
m,p-Xylene	ug/l	NC	NC	ND (0.78)	ND (0.78)	ND (0.78)	ND (0.78)	ND (0.78)	ND (0.78)	ND (0.78)	ND (0.78)	ND (0.78)	ND (0.78)	ND (0.78)	ND (0.78)	ND (0.78)	ND (0.78)	ND (0.78)
o-Xylene	ug/l	NC	NC	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)
Xylene (total)	ug/l	NC	NC	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)

MS Semi-volatiles (SW846 8270D)																		
Anthracene	ug/l	8300	40000	ND (0.20)	ND (0.21)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.21)	ND (0.21)	ND (0.20)	ND (0.21)	ND (0.21)	0.65 J	ND (0.21)	ND (0.20)	ND (0.20)	ND (0.20)
Benzo(a)anthracene	ug/l	NC	NC	ND (0.19)	ND (0.20)	ND (0.19)	ND (0.19)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.19)	ND (0.19)	ND (0.19)
Chrysene	ug/l	4	18	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.17)	ND (0.17)
bis(2-Ethylhexyl)phthalate	ug/l	1.2	2.2	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.7)	ND (1.6)	ND (1.7)	ND (1.6)	ND (1.6)
Dibenzofuran	ug/l	NC	NC	ND (0.21)	ND (0.22)	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.22)	ND (0.22)	ND (0.21)	ND (0.22)	ND (0.22)	0.33 J	ND (0.22)	ND (0.21)	ND (0.21)	ND (0.21)
Fluoranthene	ug/l	130	140	ND (0.16)	ND (0.17)	ND (0.16)	ND (0.16)	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.16)	ND (0.16)	ND (0.16)
Phenanthrene	ug/l	NC	NC	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.18)	0.64 J	ND (0.18)	ND (0.17)	ND (0.17)
Pyrene	ug/l	830	4,000	ND (0.21)	ND (0.22)	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.22)	ND (0.21)	ND (0.22)	ND (0.21)	ND (0.21)

Metals Analysis																		
Aluminum	ug/l	NC	NC	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	<200	221	239
Calcium <sup>1</sup>	ug/l	NT	NT	231000	237000	227000	231000	223000	225000	224000	223000	224000	222000	222000	226000	235000	229000	232000 <sup>o</sup>
Copper		1300	NC	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<100 <sup>i</sup>	<10
Iron		NC	NC	517	461	379	345	344	329	364	367	346	427	379	375	<1000 <sup>i</sup>	<1000 <sup>i</sup>	<1000 <sup>i</sup>
Magnesium <sup>1</sup>	ug/l	NT	NT	684000	700000	673000	689000	664000	671000	667000	664000	666000	681000	661000	672000	694000	679000	684000
Manganese	ug/l	NC	100	72.7	70.8	69.4	63.7	63.1	63	64.6	64	64.2	66.9	64.3	64.7	61.3	61.6	63.5
Potassium	ug/l	NC	NC	209000	214000	206000	199000	209000	212000	210000	209000	210000	214000	208000	212000	223000	220000	224000
Silver	ug/l	170	40,000	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Sodium	ug/l	NT	NT	5490000	5270000	5460000	5430000	5280000	5230000	5110000	5330000	5300000	5480000	5260000	5510000	5360000	5260000	5330000

General Chemistry																		
Alkalinity, Total as CaCO3	mg/l	NC	NC	90.5 <sup>k</sup>	93.6 <sup>k</sup>	92.0 <sup>k</sup>	96.7 <sup>k</sup>	95.7 <sup>k</sup>	97.2 <sup>k</sup>	119 <sup>k</sup>	108 <sup>k</sup>	105 <sup>k</sup>	101 <sup>k</sup>	104 <sup>k</sup>	105 <sup>k</sup>	102 <sup>k</sup>	102 <sup>k</sup>	101 <sup>k</sup>
Chloride <sup>2</sup>	mg/l	250000	NC	9340 <sup>r</sup>	9310 <sup>r</sup>	9370 <sup>r</sup>	9180 <sup>r</sup>	9230 <sup>r</sup>	9500 <sup>r</sup>	9140 <sup>r</sup>	9170 <sup>r</sup>	9200 <sup>r</sup>	9160 <sup>r</sup>	9420 <sup>r</sup>	9300 <sup>r</sup>	9240 <sup>r</sup>	9400 <sup>r</sup>	9180 <sup>r</sup>
Hardness, Total as CaCO3	mg/l	NC	NC	3150	3200	3330	3230	3100	3250	3200	3130	3250	3180	3230	3380	3250	3200	3200
Nitrogen, Ammonia	mg/l	NC	NC	0.33	0.33	0.34	0.32	0.33	0.32	0.31	0.34	0.32	0.32	0.34	0.32	0.38	0.4	<0.20
Nitrogen, Nitrate	mg/l	NC	NC	0.33 <sup>m</sup>	0.32 <sup>m</sup>	0.34 <sup>m</sup>	0.36 <sup>m</sup>	0.31 <sup>m</sup>	0.30 <sup>m</sup>	0.33 <sup>m</sup>	0.30 <sup>m</sup>	0.31 <sup>m</sup>	0.30 <sup>m</sup>	0.30 <sup>m</sup>	0.30 <sup>m</sup>	1.2 <sup>m</sup>	0.57 <sup>m</sup>	0.82 <sup>m</sup>
Nitrogen, Nitrate + Nitrite	mg/l	NC	NC	0.36	0.35	0.38	0.36	0.35	0.34	0.37	0.34	0.35	0.33	0.34	0.34	1.2	0.61	0.87
Nitrogen, Nitrite	mg/l	NC	NC	0.035	0.029	0.042	<0.010	0.037	0.037	0.037	0.036	0.037	0.032	0.043	0.038	0.045	0.042	0.047
Solids, Total Dissolved	mg/l	NC	NC	16700	17400	17300	16600	16000	15200	15800	16100	16200	1670	16800	16500	17000	17400	16900

NC: No Criteria

BLUE: Compound Detected, No Criteria

GREEN: Compound Detected, Non-Toxic

ORANGE: Exceedance, Result > Criteria

Table 7-2  
Smith Creek and Pond Surface Water Human Health  
Former Hess Port Reading Terminal Site  
Port Reading, New Jersey

Client Sample ID:		NJDEP Ecological Surface Water- Freshwater Human Health Screening Criterion	NJDEP Ecological Surface Water- Saline Human Health Screening Criterion	SW-23A	SW-23B	SW-23C	SW-24A	SW-24B	SW-24C	SW-25A	SW-25B	SW-25C	SW-26A	SW-26B	SW-26C	SW-27A	SW-27B	SW-27C
Lab Sample ID:				JC83841-5	JC83841-6	JC83841-7	JC83841-8	JC83841-9	JC83841-10	JC83090-1	JC83090-2	JC83090-3	JC83039-4	JC83039-5	JC83039-6	JC83039-1	JC83039-2	JC83039-3
Date Sampled:				3/5/2019	3/5/2019	3/5/2019	3/5/2019	3/5/2019	3/5/2019	2/19/2019	2/19/2019	2/19/2019	2/18/2019	2/18/2019	2/18/2019	2/18/2019	2/18/2019	2/18/2019
Matrix:				Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water

MS Volatiles (SW846 8260C)																		
Methylcyclohexane	ug/l	NC	NC	ND (0.60)	ND (0.60)	ND (0.60)	ND (0.60)	ND (0.60)	ND (0.60)	ND (0.60)	ND (0.60)	ND (0.60)	ND (0.60)	ND (0.60)	ND (0.60)	ND (0.60)	ND (0.60)	ND (0.60)
Toluene	ug/l	1300	15000	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)
m,p-Xylene	ug/l	NC	NC	ND (0.78)	ND (0.78)	ND (0.78)	ND (0.78)	ND (0.78)	ND (0.78)	0.98 J	1.2	1.2	ND (0.78)	ND (0.78)	ND (0.78)	ND (0.78)	ND (0.78)	ND (0.78)
o-Xylene	ug/l	NC	NC	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)
Xylene (total)	ug/l	NC	NC	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	0.98 J	1.2	1.2	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)

MS Semi-volatiles (SW846 8270D)																		
Anthracene	ug/l	8300	40000	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.20)	ND (0.20)	ND (0.21)	ND (0.21)
Benzo(a)anthracene	ug/l	NC	NC	ND (0.19)	ND (0.19)	ND (0.19)	ND (0.19)	ND (0.19)	ND (0.19)	ND (0.20) <sup>g</sup>	ND (0.20) <sup>g</sup>	ND (0.20) <sup>g</sup>	0.20 JB	ND (0.21)	0.19 JB	0.26 JB	0.23 JB	0.25 JB
Chrysene	ug/l	4	18	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.17) <sup>g</sup>	ND (0.17) <sup>g</sup>	ND (0.18) <sup>g</sup>	ND (0.17)	ND (0.18)	ND (0.17)	0.17 JB	ND (0.17)	ND (0.18)
bis(2-Ethylhexyl)phthalate	ug/l	1.2	2.2	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.7)	ND (1.6) <sup>a</sup>	ND (1.7) <sup>a</sup>	ND (1.6) <sup>a</sup>	2.4 <sup>h</sup>	ND (1.6) <sup>a</sup>	ND (1.7) <sup>a</sup>
Dibenzofuran	ug/l	NC	NC	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.22)	ND (0.22)	ND (0.22)	ND (0.22)	ND (0.22)	ND (0.21)	ND (0.21)	ND (0.22)	ND (0.22)
Fluoranthene	ug/l	130	140	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.17) <sup>g</sup>	ND (0.17) <sup>g</sup>	ND (0.17) <sup>g</sup>	ND (0.17)	ND (0.17)	ND (0.16)	0.22 JB	0.18 JB	ND (0.17)
Phenanthrene	ug/l	NC	NC	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.18)	ND (0.17)	ND (0.18)	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.18)
Pyrene	ug/l	830	4,000	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.22) <sup>g</sup>	ND (0.21) <sup>g</sup>	ND (0.22) <sup>g</sup>	ND (0.22) <sup>g</sup>	ND (0.22) <sup>g</sup>	ND (0.21) <sup>g</sup>	ND (0.21) <sup>g</sup>	ND (0.22) <sup>g</sup>	ND (0.22) <sup>g</sup>

Metals Analysis																		
Aluminum	ug/l	NC	NC	<200	<200	<200	<200	<200	<200	<200	364	<200	<200	<200	210	<200	246	224
Calcium <sup>f</sup>	ug/l	NT	NT	239000	239000	232000	246000	242000	240000	275000	247000	245000	247000	255000	254000	248000 <sup>i</sup>	249000	254000
Copper	ug/l	1300	NC	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10
Iron	ug/l	NC	NC	<1000 <sup>j</sup>	<1000 <sup>j</sup>	<1000 <sup>j</sup>	<1000 <sup>j</sup>	<1000 <sup>j</sup>	<1000 <sup>j</sup>	447	905	524	277	327	375	266	376	345
Magnesium <sup>f</sup>	ug/l	NT	NT	705000	710000	688000	731000	720000	713000	815000	734000	727000	753000	776000	771000	754000 <sup>i</sup>	757000	773000
Manganese	ug/l	NC	100	61.4	61.1	61.6	60.8	61.3	59.7	56.5	59.9	56.8	43.9	43.7	45.2	43.9	45	43.8
Potassium	ug/l	NC	NC	231000	232000	224000	239000	236000	234000	254000	229000	228000	227000	234000	233000	228000 <sup>i</sup>	229000	235000
Silver	ug/l	170	40,000	u	<10	<10	<10	<10	<10	<10	15.2	<10	<10	<10	<10	<10	<10	<10
Sodium	ug/l	NT	NT	5360000	5430000	5300000	5610000	5610000	5540000	5600000	5770000	5690000	5500000	5480000	5630000	5650000	6030000	5650000

General Chemistry																		
Alkalinity, Total as CaCO3	mg/l	NC	NC	103 <sup>k</sup>	102 <sup>h</sup>	102 <sup>k</sup>	104 <sup>k</sup>	101 <sup>k</sup>	103 <sup>k</sup>	108 <sup>h</sup>	106 <sup>k</sup>	107 <sup>k</sup>	101 <sup>k</sup>	101 <sup>k</sup>	101 <sup>k</sup>	101 <sup>k</sup>	99.8 <sup>k</sup>	99.8 <sup>k</sup>
Chloride <sup>z</sup>	mg/l	250000	NC	9590 <sup>f</sup>	10800 <sup>f</sup>	10100 <sup>f</sup>	9660 <sup>f</sup>	10000 <sup>f</sup>	9450 <sup>f</sup>	10100	10200	10100	10400	10500	10600	10600	10600	10700
Hardness, Total as CaCO3	mg/l	NC	NC	3380	3380	3330	3350	3200	3380	3100	3650	3700	3600	3700	3700	3800	3990	3990
Nitrogen, Ammonia	mg/l	NC	NC	0.4	0.42	0.42	0.51	0.44	0.43	0.37	0.32	0.32	0.29	0.29	0.26	0.28	0.3	0.31
Nitrogen, Nitrate	mg/l	NC	NC	0.34 <sup>m</sup>	0.60 <sup>m</sup>	0.39 <sup>m</sup>	0.89 <sup>m</sup>	1.1 <sup>m</sup>	1.8 <sup>m</sup>	0.38 <sup>m</sup>	0.35 <sup>m</sup>	0.35 <sup>m</sup>	0.34 <sup>m</sup>	0.35 <sup>m</sup>	0.38 <sup>m</sup>	0.35 <sup>m</sup>	0.35 <sup>m</sup>	0.43 <sup>m</sup>
Nitrogen, Nitrate + Nitrite	mg/l	NC	NC	0.38	0.64	0.43	0.94	1.1	1.8	0.42	0.4	0.4	0.38	0.4	0.43	0.4	0.39	0.48
Nitrogen, Nitrite	mg/l	NC	NC	0.045	0.04	0.045	0.049	0.045	0.05	0.043	0.053	0.055	0.045	0.048	0.049	0.046	0.045	0.052
Solids, Total Dissolved	mg/l	NC	NC	18500	17600	17400	16800	17900	17200	17400	18300	18300	18400	18900	18300	19300	18000	19100

NC: No Criteria  
BLUE: Compound Detected, No Criteria  
GREEN: Compound Detected, Non-Toxic  
ORANGE: Exceedance, Result > Criteria



Table 7-2  
Smith Creek and Pond Surface Water Human Health  
Former Hess Port Reading Terminal Site  
Port Reading, New Jersey

Client Sample ID:		NJDEP Ecological Surface Water- Freshwater Human Health Screening Criterion	NJDEP Ecological Surface Water- Saline Human Health Screening Criterion	SW-28A	SW-28B	SW-28C	SW-29A	SW-29B	SW-29C	SW-30A	SW-30B	SW-30C	SW-31A	SW-31B	SW-31C	SW-32A	SW-32B	SW-32C	
Lab Sample ID:				JC83090-4	JC83090-5	JC83090-6	JC83090-7	JC83090-8	JC83090-9	JC83090-10	JC83090-11	JC83090-12	JC83146-1	JC83146-2	JC83146-3	JC83146-4	JC83146-5	JC83146-6	
Date Sampled:				2/19/2019	2/19/2019	2/19/2019	2/19/2019	2/19/2019	2/19/2019	2/19/2019	2/19/2019	2/19/2019	2/19/2019	2/20/2019	2/20/2019	2/20/2019	2/20/2019	2/20/2019	2/20/2019
Matrix:				Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water
MS Volatiles (SW846 8260C)																			
Methylcyclohexane	ug/l	NC	NC	ND (0.60)	ND (0.60)	ND (0.60)	ND (0.60)	ND (0.60)	ND (0.60)	ND (0.60)	ND (0.60)	ND (0.60)	ND (0.60)	ND (0.60)	ND (0.60)	ND (0.60)	ND (0.60)	ND (0.60)	
Toluene	ug/l	1300	15000	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	0.54 J	ND (0.53)	0.53 J	0.55 J	
m,p-Xylene	ug/l	NC	NC	0.93 J	0.97 J	1.1	ND (0.78)	ND (0.78)	1.1	ND (0.78)	ND (0.78)	ND (0.78)	0.89 J	0.91 J	1	0.96 J	1	1.1	
o-Xylene	ug/l	NC	NC	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	
Xylene (total)	ug/l	NC	NC	0.93 J	0.97 J	1.1	ND (0.59)	ND (0.59)	1.1	ND (0.59)	ND (0.59)	ND (0.59)	0.89 J	0.91 J	1	0.96 J	1	1.1	
MS Semi-volatiles (SW846 8270D)																			
Anthracene	ug/l	8300	40000	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.20)	ND (0.21)	ND (0.21)	
Benzo(a)anthracene	ug/l	NC	NC	ND (0.20) <sup>g</sup>	ND (0.20) <sup>g</sup>	ND (0.20) <sup>g</sup>	ND (0.20) <sup>g</sup>	ND (0.20) <sup>g</sup>	ND (0.20) <sup>g</sup>	ND (0.20) <sup>g</sup>	ND (0.20) <sup>g</sup>	ND (0.20) <sup>g</sup>	ND (0.20) <sup>g</sup>	ND (0.20) <sup>g</sup>	ND (0.20) <sup>g</sup>	ND (0.19) <sup>g</sup>	ND (0.20) <sup>g</sup>	ND (0.20) <sup>g</sup>	
Chrysene	ug/l	4	18	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.18)	ND (0.18)	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.18)	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.18)	
bis(2-Ethylhexyl)phthalate	ug/l	1.2	2.2	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.7)	ND (1.7)	ND (1.6)	ND (1.6)	ND (1.6)	ND (1.7)	2.8	ND (1.6)	ND (1.6)	ND (1.7)	
Dibenzofuran	ug/l	NC	NC	ND (0.22)	ND (0.22)	ND (0.22)	ND (0.22)	ND (0.22)	ND (0.22)	ND (0.22)	ND (0.22)	ND (0.22)	ND (0.22)	ND (0.22)	ND (0.22)	ND (0.21)	ND (0.22)	ND (0.22)	
Fluoranthene	ug/l	130	140	ND (0.17) <sup>g</sup>	ND (0.17) <sup>g</sup>	ND (0.17) <sup>g</sup>	ND (0.17) <sup>g</sup>	ND (0.17) <sup>g</sup>	ND (0.17) <sup>g</sup>	ND (0.17) <sup>g</sup>	ND (0.17) <sup>g</sup>	ND (0.17) <sup>g</sup>	ND (0.17) <sup>g</sup>	ND (0.17) <sup>g</sup>	ND (0.17) <sup>g</sup>	ND (0.16) <sup>g</sup>	ND (0.17) <sup>g</sup>	ND (0.17) <sup>g</sup>	
Phenanthrene	ug/l	NC	NC	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.18)	ND (0.18)	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.18)	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.18)	
Pyrene	ug/l	830	4,000	ND (0.21) <sup>g</sup>	ND (0.22) <sup>g</sup>	ND (0.22) <sup>g</sup>	ND (0.22) <sup>g</sup>	ND (0.21) <sup>g</sup>	ND (0.22) <sup>g</sup>	ND (0.22) <sup>g</sup>	ND (0.22)	ND (0.22)	ND (0.22)	ND (0.22)	ND (0.22)	ND (0.21)	ND (0.22)	ND (0.22)	
Metals Analysis																			
Aluminum	ug/l	NC	NC	<200	<200	295	<200	<200	<200	<200	<200	<200	<200	<200	283	<200	<200	<200	
Calcium <sup>1</sup>	ug/l	NT	NT	244000	248000	242000	257000	250000	259000	264000	238000	245000	229000	237000	248000	230000	234000	233000	
Copper	ug/l	1300	NC	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	<10	
Iron	ug/l	NC	NC	468	482	721	495	474	458	520	545	443	441	405	667	417	394	348	
Magnesium <sup>1</sup>	ug/l	NT	NT	723000	735000	715000	760000	741000	765000	778000	697000	721000	677000	700000	732000	678000	695000	692000	
Manganese	ug/l	NC	100	56.6	58	59	57.8	56.6	57	61.6	61.8	56	58	56.2	58.4	56.9	56.2	55.3	
Potassium	ug/l	NC	NC	226000	231000	225000	237000	232000	240000	243000	219000	226000	168000	177000	185000	186000	190000	190000	
Silver	ug/l	170	40,000	21	<10	<10	14.5	20.8	<10	20.8	14.7	<10	<10	<10	<10	<10	<10	<10	
Sodium	ug/l	NT	NT	6950000	5790000	5700000	5690000	6150000	5620000	5610000	5550000	5660000	5740000	5800000	5920000	5690000	5860000	5850000	
General Chemistry																			
Alkalinity, Total as CaCO3	mg/l	NC	NC	107 <sup>k</sup>	102 <sup>k</sup>	107 <sup>k</sup>	104 <sup>k</sup>	106 <sup>k</sup>	104 <sup>k</sup>	111 <sup>k</sup>	107 <sup>k</sup>	111 <sup>k</sup>	118 <sup>k</sup>	114 <sup>k</sup>	109 <sup>k</sup>	115 <sup>k</sup>	110 <sup>k</sup>	109 <sup>k</sup>	
Chloride <sup>c</sup>	mg/l	250000	NC	10000	10000	10100	10000	10100	10000	9770	9760	9880	10000	10000	10100	9970	10100	10000	
Hardness, Total as CaCO3	mg/l	NC	NC	3350	3500	3300	3650	3500	3500	136	3500	3550	3600	3750	3550	3500	3550	3750	
Nitrogen, Ammonia	mg/l	NC	NC	0.29	0.29	0.31	0.25	0.27	0.31	0.25	0.24	0.23	0.27	0.27	0.34	0.28	0.32	0.33	
Nitrogen, Nitrate	mg/l	NC	NC	0.35 <sup>m</sup>	0.42 <sup>m</sup>	0.58 <sup>m</sup>	0.37 <sup>m</sup>	0.54 <sup>m</sup>	0.38 <sup>m</sup>	0.31 <sup>m</sup>	0.36 <sup>m</sup>	0.38 <sup>m</sup>	0.36 <sup>m</sup>	0.40 <sup>m</sup>	0.87 <sup>m</sup>	0.43 <sup>m</sup>	0.45 <sup>m</sup>	0.40 <sup>m</sup>	
Nitrogen, Nitrate + Nitrite	mg/l	NC	NC	0.38	0.43	0.62	0.41	0.58	0.42	0.35	0.38	0.41	0.41	0.45	0.92	0.46	0.48	0.42	
Nitrogen, Nitrite	mg/l	NC	NC	0.035	0.012	0.043	0.045	0.036	0.04	0.037	0.017	0.027	0.047	0.05	0.052	0.032	0.026	0.018	
Solids, Total Dissolved	mg/l	NC	NC	17500	17300	18300	18500	17600	18300	17300	18300	18900	19100	19100	18600	18900	19100	19500	

Table 7-2  
Smith Creek and Pond Surface Water Human Health  
Former Hess Port Reading Terminal Site  
Port Reading, New Jersey

Client Sample ID:		NJDEP Ecological Surface Water- Freshwater Human Health Screening Criterion	NJDEP Ecological Surface Water- Saline Human Health Screening Criterion	SW-33A	SW-33B	SW-33C	SW-34A	SW-34B	SW-34C	SW-35A	SW-35B	SW-35C
Lab Sample ID:				JC83146-7	JC83146-8	JC83146-9	JC83146-12	JC83146-13	JC83146-14	JC83146-15	JC83146-16	JC83146-17
Date Sampled:				2/20/2019	2/20/2019	2/20/2019	2/20/2019	2/20/2019	2/20/2019	2/20/2019	2/20/2019	2/20/2019
Matrix:				Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water	Surface Water

MS Volatiles (SW846 8260C)												
Methylcyclohexane	ug/l	NC	NC	ND (0.60)	ND (0.60)	ND (0.60)	0.61 J	0.62 J	0.61 J	ND (0.60)	ND (0.60)	ND (0.60)
Toluene	ug/l	1300	15000	ND (0.53)	ND (0.53)	0.56 J	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)	ND (0.53)
m,p-Xylene	ug/l	NC	NC	0.93 J	0.95 J	1.1	0.93 J	0.96 J	0.94 J	0.85 J	0.90 J	0.95 J
o-Xylene	ug/l	NC	NC	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)	ND (0.59)
Xylene (total)	ug/l	NC	NC	0.93 J	0.95 J	1.1	0.93 J	0.96 J	0.94 J	0.85 J	0.90 J	0.95 J

MS Semi-volatiles (SW846 8270D)												
Anthracene	ug/l	8300	40000	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.20)	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.21)	ND (0.21)
Benzo(a)anthracene	ug/l	NC	NC	ND (0.20) <sup>g</sup>	ND (0.20)	ND (0.20)	ND (0.20)	0.33 J	ND (0.20)	ND (0.20)	ND (0.20)	ND (0.20)
Chrysene	ug/l	4	18	ND (0.17)	ND (0.18)	ND (0.18)	ND (0.17)	0.26 J	ND (0.17)	ND (0.17)	ND (0.18)	ND (0.17)
bis(2-Ethylhexyl)phthalate	ug/l	1.2	2.2	ND (1.6)	ND (1.7)	ND (1.7)	ND (1.6)	ND (1.7)	ND (1.6)	ND (1.6)	ND (1.7)	ND (1.6)
Dibenzofuran	ug/l	NC	NC	ND (0.22)	ND (0.22)	ND (0.22)	ND (0.21)	ND (0.22)	ND (0.22)	ND (0.22)	ND (0.22)	ND (0.22)
Fluoranthene	ug/l	130	140	ND (0.17) <sup>g</sup>	ND (0.17)	ND (0.17)	ND (0.17)	0.29 J	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.17)
Phenanthrene	ug/l	NC	NC	ND (0.17)	ND (0.18)	ND (0.18)	ND (0.17)	0.22 J	ND (0.17)	ND (0.17)	ND (0.18)	ND (0.17)
Pyrene	ug/l	830	4,000	ND (0.21)	ND (0.22)	ND (0.22)	ND (0.21)	0.44 J	ND (0.22)	ND (0.21)	ND (0.22)	ND (0.21)

Metals Analysis												
Aluminum	ug/l	NC	NC	<200	<200	<200	<200	<200	<200	<200	<200	1450
Calcium <sup>1</sup>	ug/l	NT	NT	235000	233000	231000	199000	197000	226000	197000	200000	222000
Copper	ug/l	1300	NC	<10	<10	<10	<10	<10	<10	<10	<10	17.9
Iron	ug/l	NC	NC	423	411	423	535	516	602	511	515	2980
Magnesium <sup>1</sup>	ug/l	NT	NT	696000	689000	684000	685000	633000	661000	642000	651000	648000
Manganese	ug/l	NC	100	57.7	57.5	55.1	63.5	60.2	62.8	61	61.4	94.3
Potassium	ug/l	NC	NC	190000	195000	189000	182000	181000	187000	182000	184000	187000
Silver	ug/l	170	40,000	<10	<10	<10	<10	<10	<10	<10	<10	<10
Sodium	ug/l	NT	NT	5830000	5860000	5860000	5620000	4720000	4820000	4760000	4930000	5590000

General Chemistry												
Alkalinity, Total as CaCO3	mg/l	NC	NC	114 <sup>k</sup>	115 <sup>k</sup>	113 <sup>k</sup>	118 <sup>k</sup>	119 <sup>k</sup>	120 <sup>k</sup>	121 <sup>k</sup>	119 <sup>k</sup>	118 <sup>k</sup>
Chloride <sup>2</sup>	mg/l	250000	NC	9970	9850	10000	9420	9470	9860	9390	9550	9620
Hardness, Total as CaCO3	mg/l	NC	NC	3450	3600	3380	3200	3130	3150	3200	3200	3280
Nitrogen, Ammonia	mg/l	NC	NC	0.22	<0.20	0.31	0.27	0.34	0.3	0.31	0.36	0.26
Nitrogen, Nitrate	mg/l	NC	NC	0.45 <sup>m</sup>	0.35 <sup>m</sup>	0.55 <sup>m</sup>	0.48 <sup>m</sup>	0.37 <sup>m</sup>	0.34 <sup>m</sup>	0.33 <sup>m</sup>	0.30 <sup>m</sup>	0.11 <sup>m</sup>
Nitrogen, Nitrate + Nitrite	mg/l	NC	NC	0.5	0.39	0.6	0.5	0.41	0.38	0.37	0.35	0.16
Nitrogen, Nitrite	mg/l	NC	NC	0.051	0.039	0.052	0.021	0.045	0.04	0.044	0.048	0.055
Solids, Total Dissolved	mg/l	NC	NC	19000	19000	18900	14400	16000	16300	15800	16500	16900

NC:

No Criteria

BLUE:

Compound Detected, No Criteria

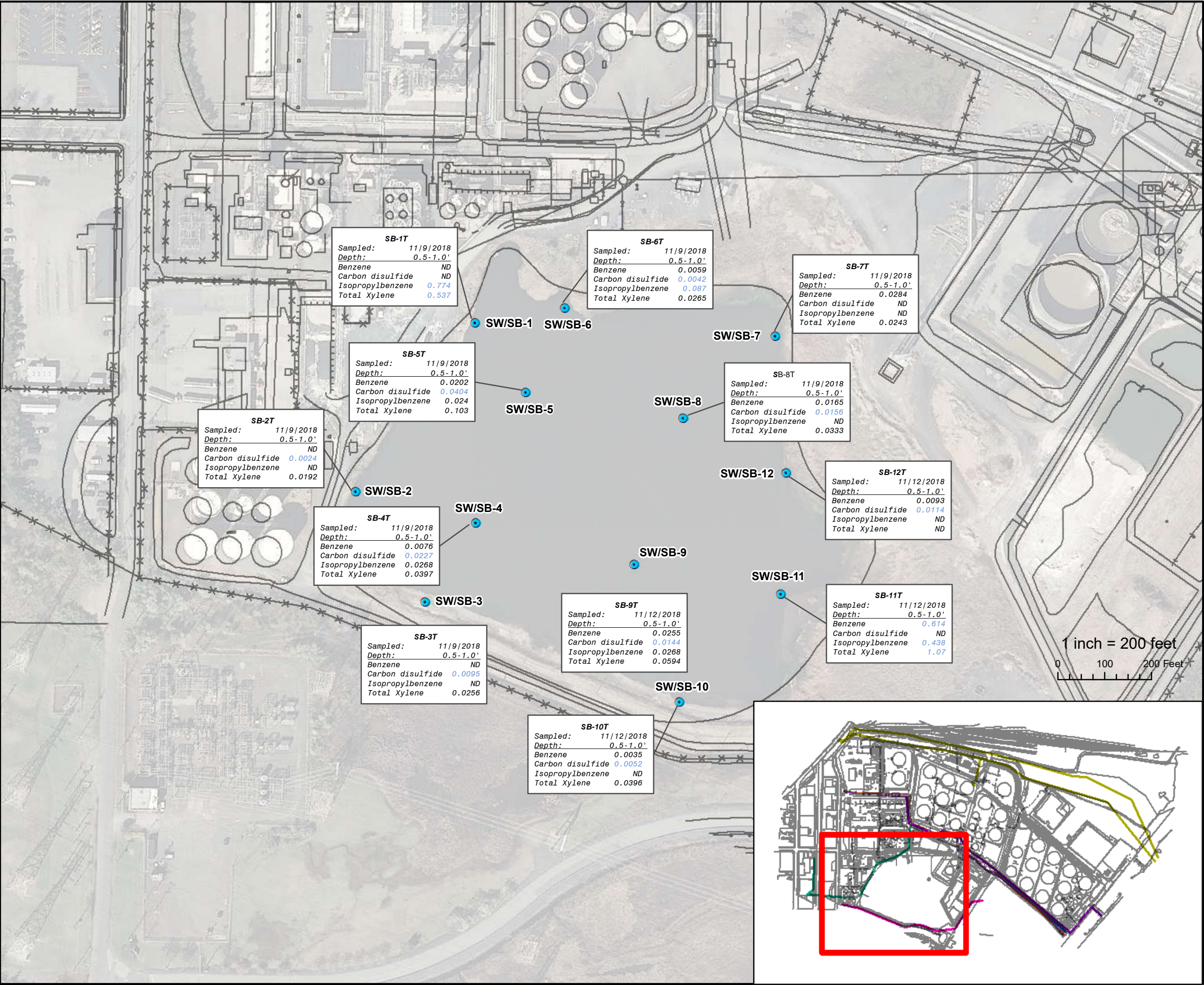
GREEN:

Compound Detected, Non-Toxic

ORANGE:

Exceedance, Result > Criteria





LEGEND

- Sediment and Surface Water Location

NJDEP Ecological Sediment - Saline Water Screening Criterion (ER-L or LEL)	
Benzene	0.34
Carbon disulfide <sup>1</sup>	0.000851
Isopropylbenzene <sup>1</sup>	0.086
Xylene (total)	0.12

NOTE:  
1. All results were measured in mg/kg

AOC 12 DETENTION BASIN  
SEDIMENT RESULTS - VOCs

Hess Former Port Reading Complex  
750 Cliff Road  
Port Reading, New Jersey

FIGURE: 7.2

Drawn By: KJ      Date : 01/17/2020



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**LEGEND**

● Sediment and Surface Water Location

NOTE:  
1. All VOC analysis for sediment samples are under sediment - saline screening criterion

**AOC 12 SMITH CREEK AND POND  
SEDIMENT RESULTS - VOCs**

Hess Former Port Reading Complex  
750 Cliff Road  
Port Reading, New Jersey

**FIGURE: 7.3**

Drawn By: KJ      Date : 01/17/2020

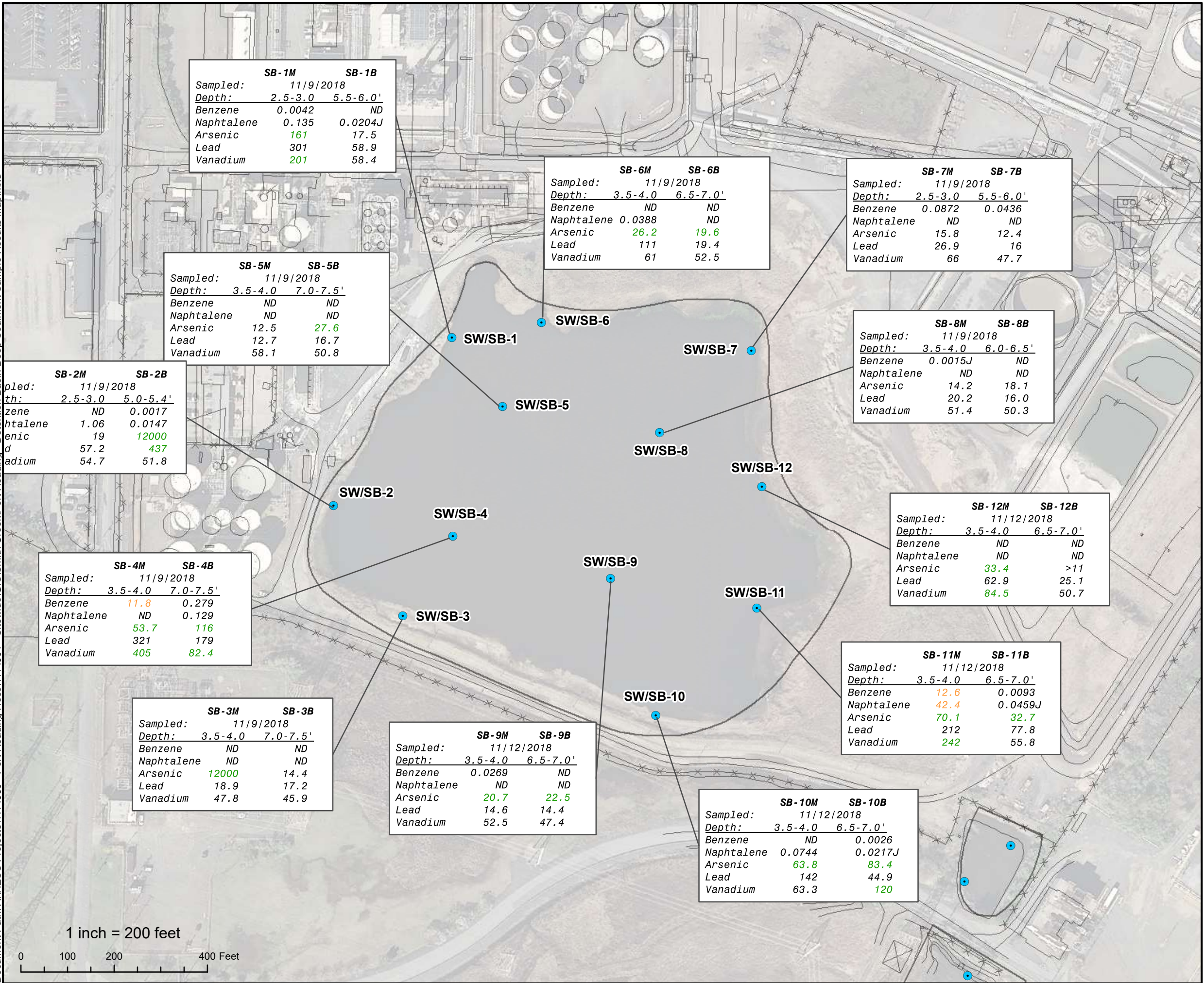


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**LEGEND**

- Sediment and Surface Water Location

	NJ Non-Residential Direct Contact Soil	NJ Residential Direct Contact Soil
Benzene	5	2
Naphthalene	17	6
Arsenic	19	19
Lead	800	400
Vanadium	1100	78

NOTE:  
1. All results were measured in mg/kg  
2. Orange: Exceedance, Over NRSRS Standard  
3. Green: Exceedance, Over RSRS Standard

**AOC 12 DETENTION BASIN DEEP  
SEDIMENT ANALYTICAL RESULTS**

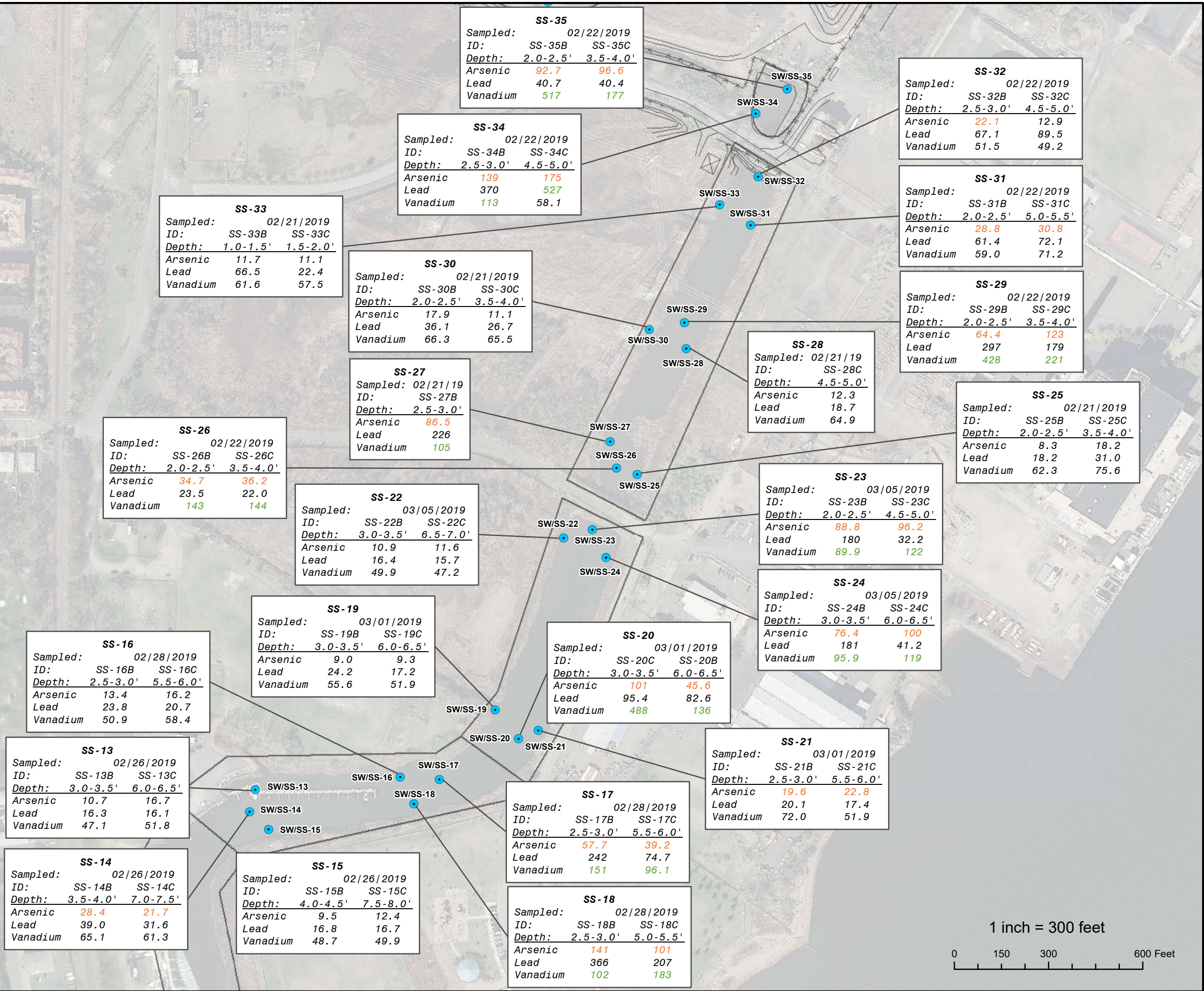
Hess Former Port Reading Complex  
750 Cliff Road  
Port Reading, New Jersey

**FIGURE: 7.4**

Drawn By: AE Date : 01/20/220

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LEGEND

- Sediment and Surface Water Location

	NJDEP RSRS	NJDEP NRSRS
Arsenic	19	19
Lead	800	400
Vanadium	1100	78

NOTE:  
1. All results were measured in mg/kg

AOC 12 SMITH CREEK AND POND  
DEEP SEDIMENT RESULTS

Hess Former Port Reading Complex  
750 Cliff Road  
Port Reading, New Jersey

FIGURE: 7.5

Drawn By: KJ      Date : 01/20/220

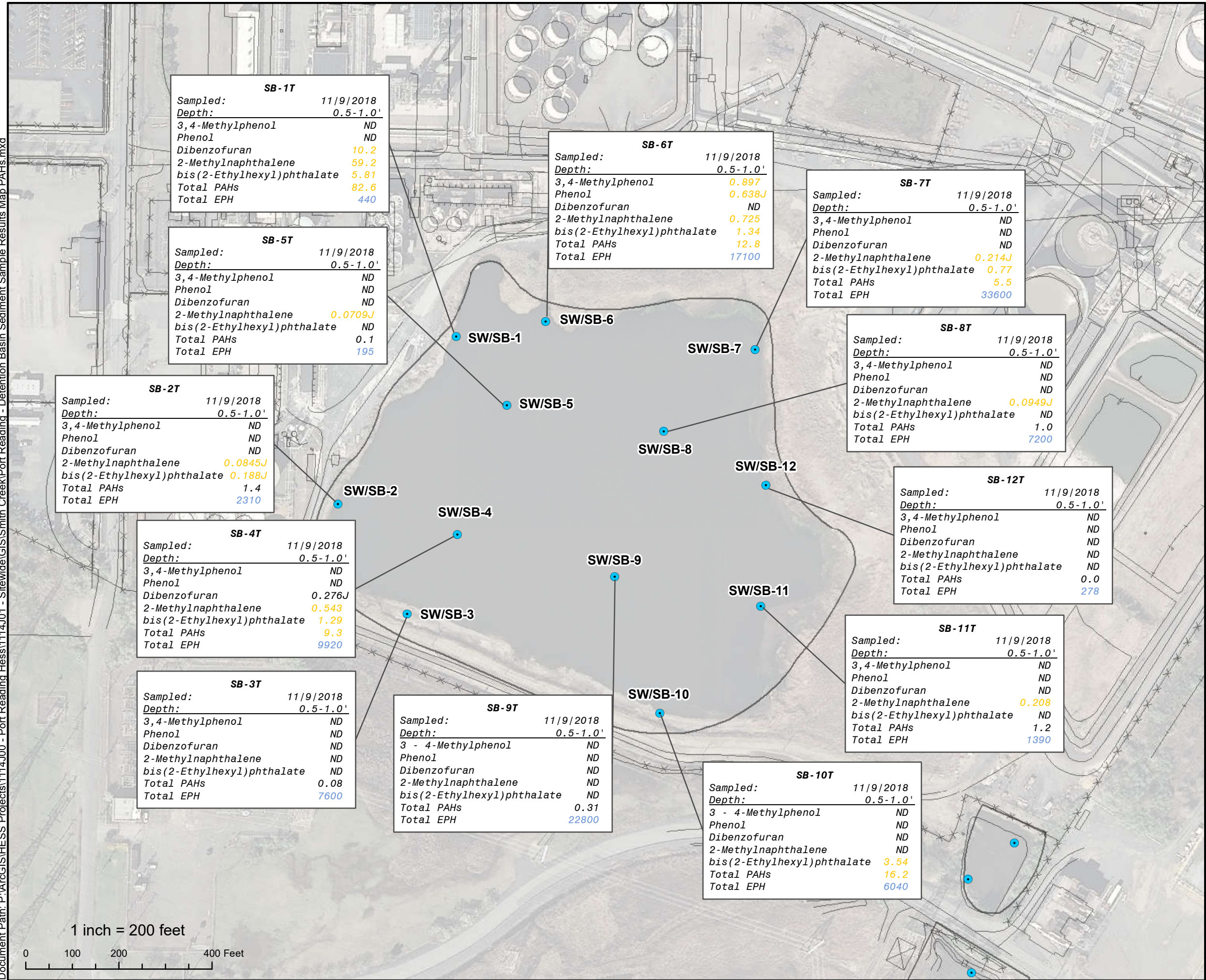


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Document Path: P:\ArcGIS\Hess Projects\114.00 - Port Reading Hess\114.001 - Sitewide\GIS\Smith Creek\Port Reading - Detention Basin Sediment Sample Results Map PAHs.mxd



LEGEND

- Sediment and Surface Water Location

NJDEP Ecological Sediment - FreshWater Screening Criterion (ER-L or LEL)	
3,4-Methylphenol	0.67
Phenol	0.0491
Dibenzofuran	0.415
2-Methylnaphthalene	0.0202
bis(2-Ethylhexyl)phthalate	0.182
Total PAHs	4
Total EPH	NC

- NOTE:
- 1. All results were measured in mg/kg
  - 2. NC: No Criteria
  - 3. Blue: Compound Detected, No Criteria
  - 4. Orange: Exceedance, Result > Criteria

AOC 12 DETENTION BASIN SEDIMENT RESULTS - SVOC/EPH

Hess Former Port Reading Complex  
750 Cliff Road  
Port Reading, New Jersey

FIGURE: 7.6

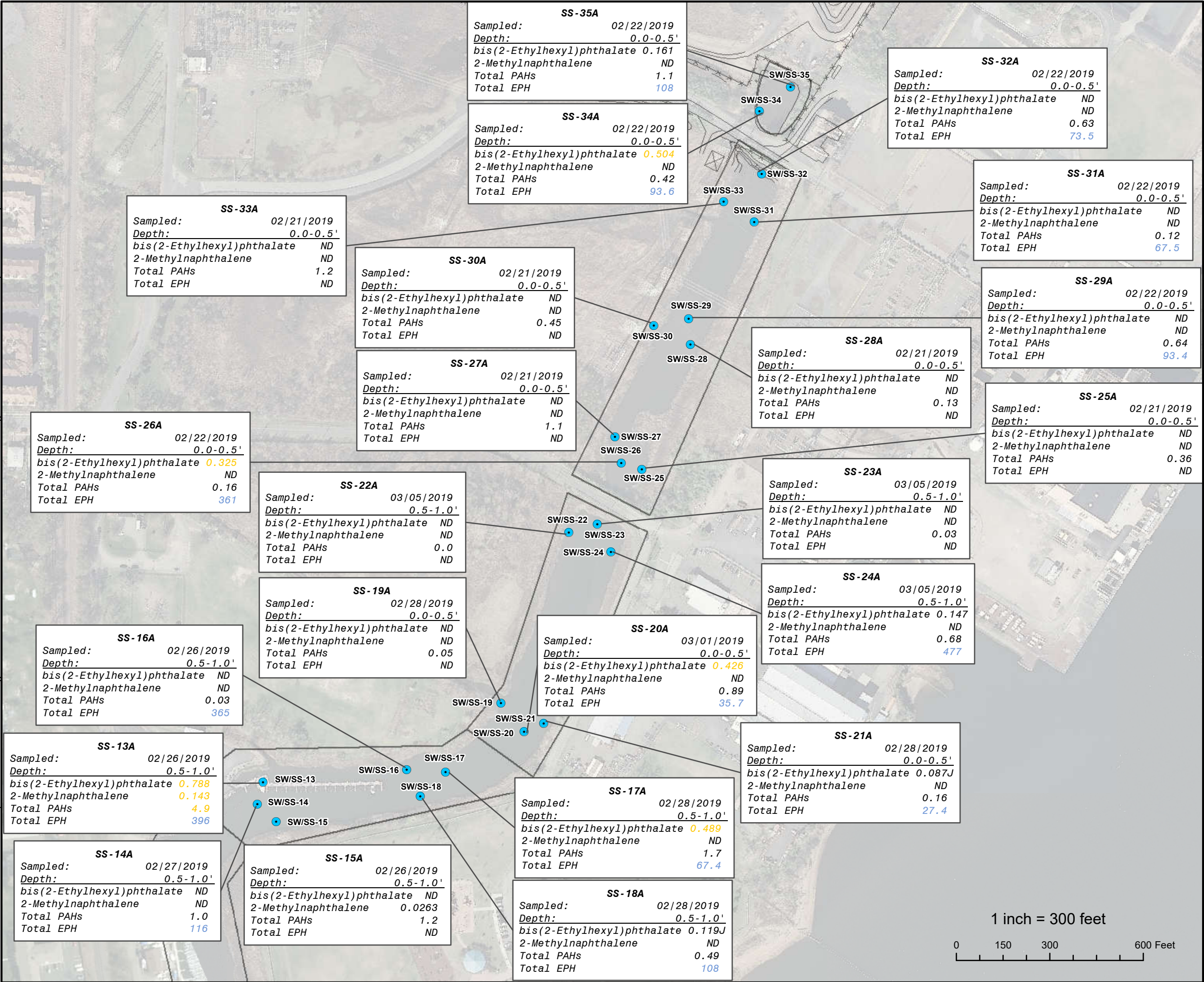
Drawn By: KJ      Date : 01/20/220



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LEGEND

- Sediment and Surface Water Location

NJDEP Ecological Sediment - Saline Water Screening Criterion (ER-L or LEL)	
bis(2-Ethylhexyl)phthalate	0.182
2-Methylnaphthalene	0.07
Total PAHs	4
Total EPH	NC

NOTE:  
1. All results were measured in mg/kg  
2. NC: No Criteria  
3. Blue: Compound Detected, No Criteria  
4. Orange: Exceedance, Result > Criteria

AOC 12 SMITH CREEK AND POND SEDIMENT RESULTS - SVOC/EPH

Hess Former Port Reading Complex  
750 Cliff Road  
Port Reading, New Jersey

FIGURE: 7.7

Drawn By: KJ Date : 01/20/220

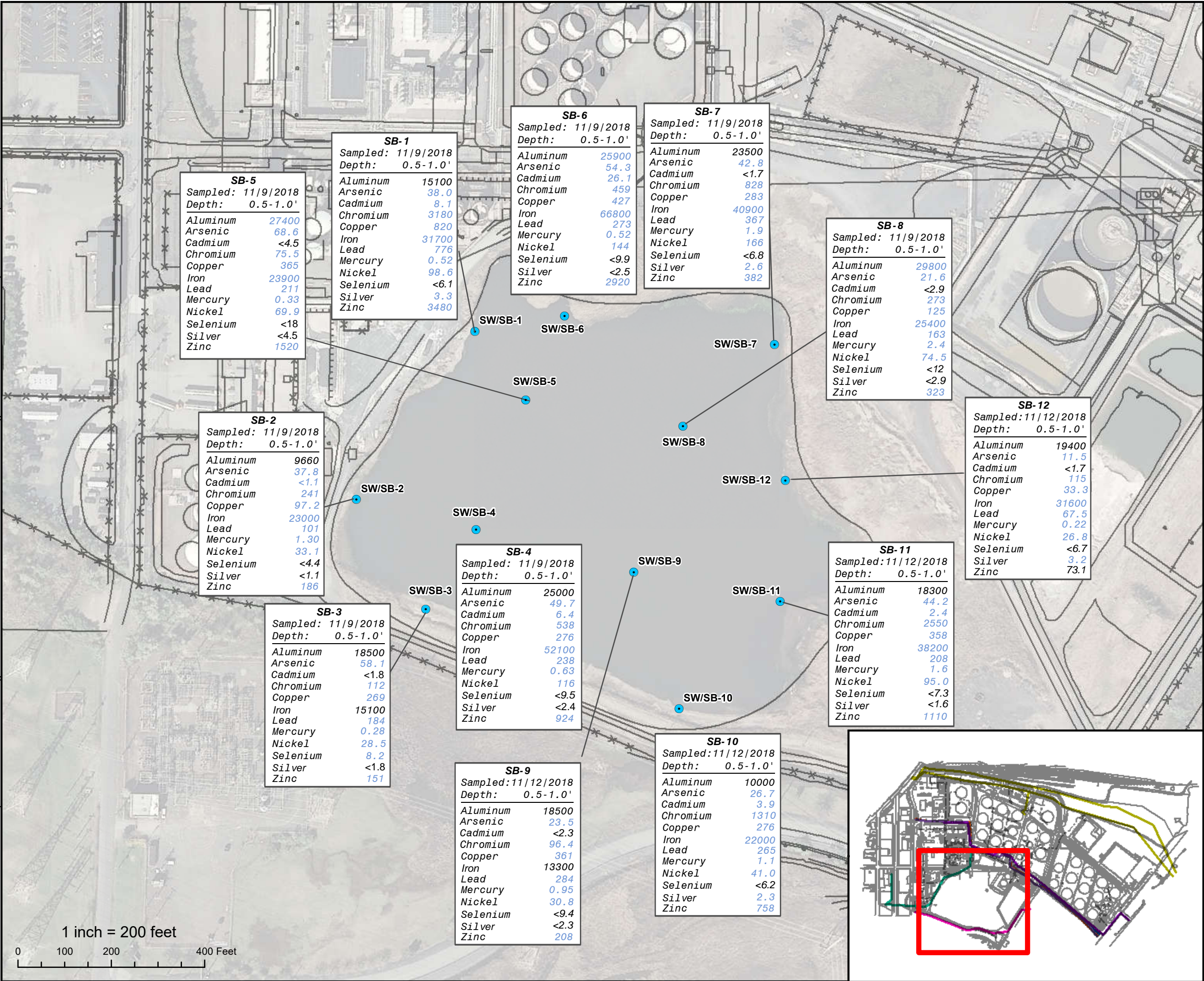


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Document Path: P:\ArcGIS\Hess Projects\114J00 - Port Reading Hess\114J00 - Port Reading Hess\114J01 - Sitewide\GIS\Smith Creek\Port Reading - Smith Creek Sediment Sample Results Map - Metals.mxd



## LEGEND

- Sediment and Surface Water Location

NOTES:  
- All results provided in parts per million (mg/L)  
- SS-1 thru SS-12: Detention Basin - NJDEP Ecological Aquatic Life Freshwater Chronic Criterion

## AOC 12 - DETENTION BASIN SEDIMENT RESULTS - METALS

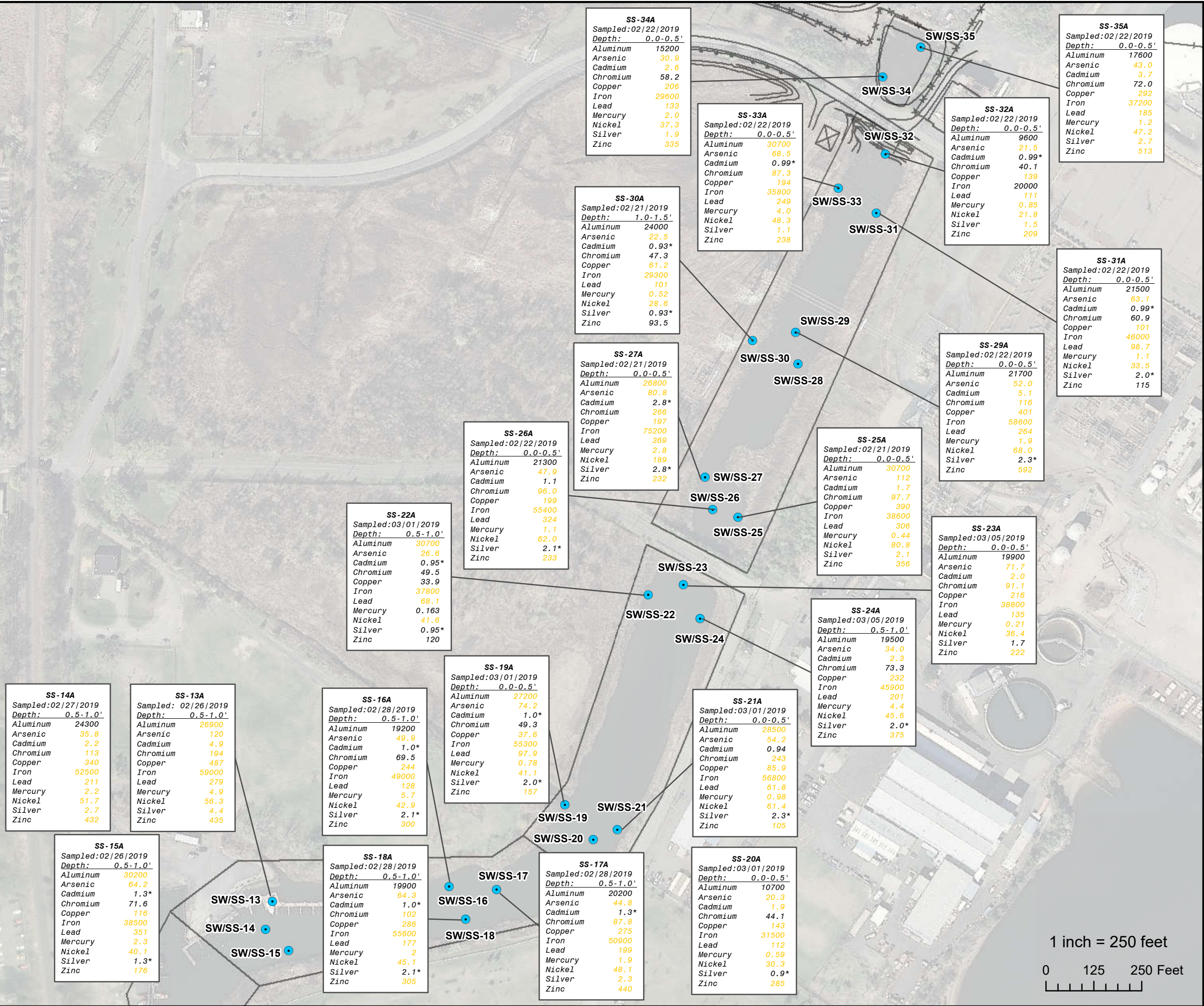
Hess Former Port Reading Complex  
750 Cliff Road  
Port Reading, New Jersey

FIGURE: 7.8

Drawn By: RC Date: 01/17/2020

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## LEGEND

- Sediment and Surface Water Location

### NJDEP Ecological Sediment - Saline Water Screening Criterion (ER-L or LEL)

Aluminum	25500
Arsenic	8.2
Cadmium	1.2
Chromium	81
Copper	34
Iron	20000
Lead	47
Mercury	0.15
Nickel	21
Silver	1
Zinc	150

NOTES:  
- All results provided in parts per million (mg/kg)

## AOC 12 - SMITH CREEK AND POND SEDIMENT RESULTS - METALS

Hess Former Port Reading Complex  
750 Cliff Road  
Port Reading, New Jersey

FIGURE: 7.9

Drawn By: RC Date: 01/17/2020

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Table 7.3  
Detention Basin Sediment Screening - Ecological Evaluation  
Former Hess Port Reading Terminal Site  
Port Reading, NJ

Client Sample ID:		NJDEP Ecological		SB-1T	SB-2T	SB-3T	SB-4T	SB-5T	SB-6T	SB-7T	SB-8T	SB-9T	SB-10T	SB-11T	SB-12T
Lab Sample ID:		Sediment - Freshwater Screening Criterion (ER-L or LEL)		JC77657-1	JC77657-4	JC77657-7	JC77657-12	JC77657-15	JC77657-18	JC77657-21	JC77657-24	JC77814-3	JC77814-6	JC77814-9	JC77814-12
Date Sampled:			11/9/2018	11/9/2018	11/9/2018	11/9/2018	11/9/2018	11/9/2018	11/9/2018	11/9/2018	11/9/2018	11/12/2018	11/12/2018	11/12/2018	11/12/2018
Matrix:			Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
MS Volatiles (SW846 8260C)															
Acetone	NC	mg/kg	ND (1.7)	0.112	0.233	1.31	0.249	0.205	0.189	0.465	0.297	0.236	ND (0.78)	0.137	
Benzene	0.142	mg/kg	ND (0.13)	ND (0.00097)	0.0064	0.0076	0.0202	0.0059	0.0284	0.0165	0.0255	0.0035	0.614	0.0093	
Bromochloromethane	NC	mg/kg	ND (0.14)	ND (0.0011)	ND (0.0023)	ND (0.0034)	ND (0.0058)	ND (0.0016)	ND (0.0018)	ND (0.0038)	ND (0.0033)	ND (0.0020)	ND (0.067)	ND (0.0021)	
Bromodichloromethane	NC	mg/kg	ND (0.15)	ND (0.0011)	ND (0.0023)	ND (0.0035)	ND (0.0080)	ND (0.0016)	ND (0.0019)	ND (0.0039)	ND (0.0034)	ND (0.0021)	ND (0.069)	ND (0.0022)	
Bromofom	0.492	mg/kg	ND (0.13)	ND (0.0010)	ND (0.0021)	ND (0.0031)	ND (0.0054)	ND (0.0015)	ND (0.0017)	ND (0.0035)	ND (0.0031)	ND (0.0019)	ND (0.063)	ND (0.0020)	
Bromomethane	0.00137	mg/kg	ND (0.33)	ND (0.0026)	ND (0.0053)	ND (0.0078)	ND (0.013)	ND (0.0037)	ND (0.0042)	ND (0.0088)	ND (0.0076)	ND (0.0046) *	ND (0.15)	ND (0.0049)	
2-Butanone (MEK)	NC	mg/kg	ND (1.2)	0.0212 J	0.0493 J	0.114	ND (0.050)	0.0422	0.0360 J	0.102	0.0636 J	0.0493	ND (0.58)	0.0267 J	
Carbon disulfide	0.000851	mg/kg	ND (0.31)	0.0024 J	0.0095 J	0.0227	0.0404	0.0042 J	ND (0.0040)	0.0156 J	0.0144 J	0.0052 J	ND (0.14)	0.0114	
Carbon tetrachloride	1.45	mg/kg	ND (0.18)	ND (0.0014)	ND (0.0029)	ND (0.0043)	ND (0.0074)	ND (0.0020)	ND (0.0023)	ND (0.0048)	ND (0.0042)	ND (0.0026)	ND (0.086)	ND (0.0027)	
Chlorobenzene	0.291	mg/kg	ND (0.12)	ND (0.00091)	ND (0.0019)	ND (0.0028)	ND (0.0048)	ND (0.0013)	ND (0.0015)	ND (0.0031)	ND (0.0027)	0.0030 J	0.0611 J	ND (0.0017)	
Chloroethane	NC	mg/kg	ND (0.23)	ND (0.0018)	ND (0.0036)	ND (0.0054)	ND (0.0093)	ND (0.0025)	ND (0.0029)	ND (0.0060)	ND (0.0053)	ND (0.0032) *	ND (0.11)	ND (0.0033)	
Chlorofom	0.121	mg/kg	ND (0.12)	ND (0.00096)	ND (0.0020)	ND (0.0029)	ND (0.0050)	ND (0.0014)	ND (0.0016)	ND (0.0033)	ND (0.0028)	ND (0.0017)	ND (0.058)	ND (0.0018)	
Chloromethane	NC	mg/kg	ND (0.65)	ND (0.0051)	ND (0.010)	ND (0.015)	ND (0.026)	ND (0.0072)	ND (0.0084)	ND (0.017)	ND (0.015)	ND (0.0091)	ND (0.30)	ND (0.0096)	
Cyclohexane	NC	mg/kg	0.513 J	0.0013 J	ND (0.0021)	0.0556	0.0062 J	0.0535	0.0030 J	ND (0.0036)	0.0546	ND (0.0019)	0.210 J	ND (0.0020)	
1,2-Dibromo-3-chloropropane	NC	mg/kg	ND (0.28)	ND (0.0022)	ND (0.0044)	ND (0.0065)	ND (0.011)	ND (0.0031)	ND (0.0036)	ND (0.0074)	ND (0.0064)	ND (0.0039)	ND (0.13)	ND (0.0041)	
Dibromochloromethane	NC	mg/kg	ND (0.11)	ND (0.00087)	ND (0.0018)	ND (0.0026)	ND (0.0046)	ND (0.0012)	ND (0.0014)	ND (0.0030)	ND (0.0026)	ND (0.0016)	ND (0.053)	ND (0.0016)	
1,2-Dibromoethane	NC	mg/kg	ND (0.11)	ND (0.00084)	ND (0.0017)	ND (0.0025)	ND (0.0044)	ND (0.0012)	ND (0.0014)	ND (0.0029)	ND (0.0025)	ND (0.0015)	ND (0.0016)	ND (0.0016)	
1,2-Dichlorobenzene	0.294	mg/kg	ND (0.10)	ND (0.00079)	ND (0.0016)	ND (0.0024)	ND (0.0041)	ND (0.0011)	ND (0.0013)	ND (0.0027)	ND (0.0023)	ND (0.0014)	0.224	ND (0.0015)	
1,3-Dichlorobenzene	1.315	mg/kg	ND (0.12)	ND (0.00093)	ND (0.0019)	ND (0.0028)	ND (0.0048)	ND (0.0013)	ND (0.0015)	ND (0.0032)	ND (0.0027)	ND (0.0017)	0.0919 J	ND (0.0017)	
1,4-Dichlorobenzene	0.318	mg/kg	ND (0.11)	0.0010 J	ND (0.0018)	ND (0.0027)	ND (0.0046)	ND (0.0013)	ND (0.0015)	ND (0.0030)	ND (0.0026)	ND (0.0016)	0.185	ND (0.0017)	
Dichlorodifluoromethane	NC	mg/kg	ND (0.21) *	ND (0.0016)	ND (0.0034)	ND (0.0050)	ND (0.0086)	ND (0.0023)	ND (0.0027)	ND (0.0056)	ND (0.0049)	ND (0.0030)	ND (0.099)	ND (0.0031)	
1,1-Dichloroethane	NC	mg/kg	ND (0.13)	ND (0.00099)	ND (0.0020)	ND (0.0030)	ND (0.0052)	ND (0.0014)	ND (0.0016)	ND (0.0034)	ND (0.0029)	ND (0.0018)	ND (0.060)	ND (0.0019)	
1,2-Dichloroethane	0.26	mg/kg	ND (0.16)	ND (0.0012)	ND (0.0025)	ND (0.0037)	ND (0.0063)	ND (0.0017)	ND (0.0020)	ND (0.0041)	ND (0.0036)	ND (0.0022)	ND (0.073)	ND (0.0023)	
1,1-Dichloroethene	0.0194	mg/kg	ND (0.22)	ND (0.0017)	ND (0.0035)	ND (0.0051)	ND (0.0089)	ND (0.0024)	ND (0.0028)	ND (0.0058)	ND (0.0050)	ND (0.0031)	ND (0.10)	ND (0.0032)	
cis-1,2-Dichloroethene	NC	mg/kg	ND (0.32)	ND (0.0025)	ND (0.0051)	ND (0.0075)	ND (0.013)	ND (0.0035)	0.005	ND (0.0084)	ND (0.0073)	ND (0.0045)	ND (0.15)	ND (0.0047)	
trans-1,2-Dichloroethene	0.654	mg/kg	ND (0.22)	ND (0.0017)	ND (0.0035)	ND (0.0052)	ND (0.0090)	ND (0.0025)	ND (0.0028)	ND (0.0059)	ND (0.0051)	ND (0.0031)	ND (0.10)	ND (0.0033)	
1,2-Dichloropropane	0.333	mg/kg	ND (0.14)	ND (0.0011)	ND (0.0021)	ND (0.0032)	ND (0.0055)	ND (0.0015)	ND (0.0017)	ND (0.0036)	ND (0.0031)	ND (0.0019)	ND (0.063)	ND (0.0020)	
cis-1,3-Dichloropropene	NC	mg/kg	ND (0.12)	ND (0.00091)	ND (0.0019)	ND (0.0027)	ND (0.0047)	ND (0.0013)	ND (0.0015)	ND (0.0031)	ND (0.0027)	ND (0.0016)	ND (0.055)	ND (0.0017)	
trans-1,3-Dichloropropene	NC	mg/kg	ND (0.11)	ND (0.00084)	ND (0.0017)	ND (0.0026)	ND (0.0044)	ND (0.0012)	ND (0.0014)	ND (0.0029)	ND (0.0025)	ND (0.0015)	ND (0.051)	ND (0.0016)	
Ethylbenzene	0.175	mg/kg	ND (0.18)	ND (0.0014)	0.0074	ND (0.0043)	0.0326	0.0031 J	0.0063	0.0112	0.0272	0.0057	0.0934 J	ND (0.0027)	
Freon 113	NC	mg/kg	ND (0.25)	ND (0.0020)	ND (0.0040)	ND (0.0059)	ND (0.010)	ND (0.0028)	ND (0.0033)	ND (0.0067)	ND (0.0058)	ND (0.0035)	ND (0.12)	ND (0.0037)	
2-Hexanone	NC	mg/kg	ND (0.42)	ND (0.0033)	ND (0.0067)	ND (0.0099)	ND (0.017)	ND (0.0047)	ND (0.0054)	ND (0.011)	ND (0.0097)	ND (0.0059)	ND (0.20)	ND (0.0062)	
Isopropylbenzene	0.086	mg/kg	0.774	ND (0.0018)	ND (0.0037)	0.0268	0.0240 J	0.087	ND (0.0030)	ND (0.0061)	0.0268	ND (0.0032)	0.438	ND (0.0034)	
Methyl Acetate	NC	mg/kg	0.534 J	ND (0.0036)	ND (0.0073)	ND (0.011)	ND (0.019)	ND (0.0051)	ND (0.0059)	ND (0.012)	ND (0.011)	ND (0.0065)	ND (0.22)	ND (0.0068)	
Methylcyclohexane	NC	mg/kg	1.79	ND (0.0018)	ND (0.0037)	0.0244	0.0223 J	0.0527	ND (0.0030)	ND (0.0062)	0.069	0.0034 J	0.859	ND (0.0034)	
Methyl Tert Butyl Ether	NC	mg/kg	ND (0.12)	0.0015 J	ND (0.0019)	1.31	ND (0.0047)	0.0291	0.0027 J	ND (0.0031)	ND (0.0027)	ND (0.0016)	ND (0.055)	ND (0.0017)	
4-Methyl-2-pentanone(MBK)	NC	mg/kg	ND (0.52)	ND (0.0040)	ND (0.0082)	ND (0.012)	ND (0.021)	ND (0.0058)	ND (0.0067)	ND (0.014)	ND (0.012)	ND (0.0073)	ND (0.24)	ND (0.0076)	
Methylene chloride	0.159	mg/kg	ND (0.83)	ND (0.0065)	ND (0.013)	ND (0.020)	ND (0.034)	ND (0.0092)	ND (0.011)	ND (0.022)	ND (0.019)	ND (0.012)	ND (0.39)	ND (0.012)	
Styrene	0.254	mg/kg	ND (0.19)	ND (0.0015)	ND (0.0030)	ND (0.0045)	ND (0.0078)	ND (0.0021)	ND (0.0025)	ND (0.0051)	ND (0.0044)	ND (0.0027)	ND (0.089)	ND (0.0028)	
1,1,2,2-Tetrachloroethane	0.85	mg/kg	ND (0.13)	ND (0.0010)	ND (0.0021)	ND (0.0030)	ND (0.0053)	ND (0.0014)	ND (0.0017)	ND (0.0034)	ND (0.0030)	ND (0.0018)	ND (0.061)	ND (0.0019)	
Tetrachloroethene	0.45	mg/kg	ND (0.15)	ND (0.0012)	ND (0.0024)	ND (0.0036)	ND (0.0062)	ND (0.0017)	ND (0.0020)	ND (0.0041)	ND (0.0035)	ND (0.0022)	ND (0.072)	ND (0.0023)	
Toluene	1.22	mg/kg	ND (0.12)	ND (0.00097)	0.0377	0.0042 J	0.0098 J	0.0102	0.0296	0.0204	0.0305	0.0146	0.201	0.0021	
1,2,3-Trichlorobenzene	NC	mg/kg	ND (0.33)	ND (0.0026)	ND (0.0053)	ND (0.0078)	ND (0.013)	ND (0.0037)	ND (0.0043)	ND (0.0088)	ND (0.0076)	ND (0.0047)	ND (0.16)	ND (0.0049)	
1,2,4-Trichlorobenzene	5.062	mg/kg	ND (0.33)	ND (0.0026)	ND (0.0053)	ND (0.0078)	ND (0.013)	ND (0.0037)	ND (0.0043)	ND (0.0088)	ND (0.0076)	ND (0.0047)	0.209 J	ND (0.0049)	
1,1,1-Trichloroethane	0.213	mg/kg	ND (0.14)	ND (0.0011)	ND (0.0022)	ND (0.0033)	ND (0.0057)	ND (0.0016)	ND (0.0018)	ND (0.0038)	ND (0.0033)	ND (0.0020)	ND (0.066)	ND (0.0021)	
1,1,2-Trichloroethane	0.518	mg/kg	ND (0.11)	ND (0.00088)	ND (0.0018)	ND (0.0027)	ND (0.0046)	ND (0.0013)	ND (0.0015)	ND (0.0030)	ND (0.0026)	ND (0.0016)	ND (0.053)	ND (0.0017)	
Trichloroethene	1.6	mg/kg	ND (0.25)	ND (0.0020)	ND (0.0040)	ND (0.0059)	ND (0.010)	ND (0.0028)	ND (0.0033)	ND (0.0067)	ND (0.0058)	ND (0.0035)	ND (0.12)	ND (0.0037)	
Trichlorofluoromethane	NC	mg/kg	ND (0.23)	ND (0.0018)	ND (0.0036)	ND (0.0053)	ND (0.0092)	ND (0.0025)	ND (0.0029)	ND (0.0060)	ND (0.0052)	ND (0.0032)	ND (0.11)	ND (0.0033)	
Vinyl chloride	0.202	mg/kg	ND (0.16) *	ND (0.0012)	ND (0.0025)	ND (0.0037)	ND (0.0063)	ND (0.0017)	0.0028 J	ND (0.0041)	ND (0.0036) †	ND (0.0022)	ND (0.073)	ND (0.0023) †	
m,p-Xylene	NC	mg/kg	0.537	0.0133	0.0163	0.0174	0.0388	0.0105	0.0163	0.0208	0.0341	0.0234	0.509	ND (0.0036)	
o-Xylene	NC	mg/kg	ND (0.19)	0.0059	0.0093	0.0223	0.0639	0.016	0.008	0.0125	0.0253	0.0162	0.564	ND (0.0028)	
Xylene (total)	0.433	mg/kg	0.537	0.0192	0.0256	0.0397	0.103	0.0265	0.0243	0.0333	0.0594	0.0396	1.07	ND (0.0028)	
MS Volatile TIC															
Total TIC, Volatile	NC	mg/kg	89.6 J	0	0	9.006 J	0.373 J	3.39 J	0.407 J	0	9.51 J	5.74 J	92.4 J	0	
Total Alkanes	NC	mg/kg	0	0	0	0.722 J	0	4.5 J	0.186 J	0	2.37 J	3.06 J	0	0	

Table 7.3  
Detention Basin Sediment Screening - Ecological Evaluation  
Former Hess Port Reading Terminal Site  
Port Reading, NJ

Client Sample ID:	NJDEP Ecological Sediment- Freshwater Screening Criterion (ER-L or LEL)	SB-1T	SB-2T	SB-3T	SB-4T	SB-5T	SB-6T	SB-7T	SB-8T	SB-9T	SB-10T	SB-11T	SB-12T	
Lab Sample ID:		JC77657-1	JC77657-4	JC77657-7	JC77657-12	JC77657-15	JC77657-18	JC77657-21	JC77657-24	JC77814-3	JC77814-6	JC77814-9	JC77814-12	
Date Sampled:		11/9/2018	11/9/2018	11/9/2018	11/9/2018	11/9/2018	11/9/2018	11/9/2018	11/9/2018	11/12/2018	11/12/2018	11/12/2018	11/12/2018	
Matrix:		Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	
<b>MS Semi-volatiles (SW846 8270D)</b>														
2-Chlorophenol	0.0319	mg/kg	ND (0.47)	ND (0.070)	ND (0.060)	ND (0.15)	ND (0.15)	ND (0.20)	ND (0.11)	ND (0.19)	ND (0.14)	ND (0.51)	ND (0.059)	ND (0.057)
4-Chloro-3-methyl phenol	NC	mg/kg	ND (0.58)	ND (0.087)	ND (0.074)	ND (0.18)	ND (0.19)	ND (0.25)	ND (0.14)	ND (0.24)	ND (0.18)	ND (0.63)	ND (0.074)	ND (0.071)
2,4-Dichlorophenol	0.817	mg/kg	ND (0.81)	ND (0.12)	ND (0.10)	ND (0.26)	ND (0.26)	ND (0.35)	ND (0.19)	ND (0.33)	ND (0.25)	ND (0.88)	ND (0.10)	ND (0.099)
2,4-Dimethylphenol	0.304	mg/kg	ND (1.7)	ND (0.25)	ND (0.21)	ND (0.54)	ND (0.54)	ND (0.74)	ND (0.40)	ND (0.69)	ND (0.52)	ND (1.8)	ND (0.21)	ND (0.21)
2,4-Dinitrophenol	0.00621	mg/kg	ND (3.6)	ND (0.53)	ND (0.45)	ND (1.1)	ND (1.1)	ND (1.6)	ND (0.84)	ND (1.5)	ND (1.1) *	ND (3.9) *	ND (0.45) *	ND (0.44) *
4,6-Dinitro-o-cresol	NC	mg/kg	ND (1.0)	ND (0.15)	ND (0.13)	ND (0.32)	ND (0.32)	ND (0.44)	ND (0.24)	ND (0.41)	ND (0.31)	ND (1.1)	ND (0.13)	ND (0.12)
2-Methylphenol	NC	mg/kg	ND (6.1)	ND (0.091)	ND (0.077)	ND (0.19)	ND (0.19)	ND (0.26)	ND (0.14)	ND (0.25)	ND (0.19)	ND (0.66)	ND (0.077)	ND (0.074)
3,4-Methylphenol	0.67	mg/kg	ND (0.78)	ND (0.12)	ND (0.099)	ND (0.25)	ND (0.25)	0.897	ND (0.18)	ND (0.32)	ND (0.24)	ND (0.85)	ND (0.099)	ND (0.095)
2-Nitrophenol	NC	mg/kg	ND (0.63)	ND (0.094)	ND (0.080)	ND (0.20)	ND (0.20)	ND (0.27)	ND (0.15)	ND (0.26)	ND (0.19)	ND (0.68)	ND (0.079)	ND (0.077)
4-Nitrophenol	0.0133	mg/kg	ND (2.5)	ND (0.38)	ND (0.32)	ND (0.80)	ND (0.81)	ND (1.1)	ND (0.60)	ND (1.0)	ND (0.78)	ND (2.8) †	ND (0.32)	ND (0.31)
Pentachlorophenol	23	mg/kg	ND (0.89)	ND (0.13)	ND (0.11)	ND (0.28)	ND (0.28)	ND (0.39)	ND (0.21)	ND (0.36)	ND (0.27) †	ND (0.97)	ND (0.11) †	ND (0.11) †
Phenol	0.0491	mg/kg	ND (0.50)	ND (0.074)	ND (0.063)	ND (0.16)	ND (0.16)	0.638 J	ND (0.12)	ND (0.20)	ND (0.15) †	ND (0.54)	ND (0.063) †	ND (0.060) †
2,3,4,6-Tetrachlorophenol	NC	mg/kg	ND (0.63)	ND (0.094)	ND (0.080)	ND (0.20) *	ND (0.20) *	ND (0.27) *	ND (0.15)	ND (0.26)	ND (0.19)	ND (0.68)	ND (0.080)	ND (0.077)
2,4,5-Trichlorophenol	NC	mg/kg	ND (0.71)	ND (0.11)	ND (0.090)	ND (0.23)	ND (0.23)	ND (0.31)	ND (0.17)	ND (0.29)	ND (0.22)	ND (0.77)	ND (0.090)	ND (0.087)
2,4,6-Trichlorophenol	0.208	mg/kg	ND (0.57)	ND (0.084)	ND (0.072)	ND (0.18)	ND (0.18)	ND (0.25)	ND (0.13)	ND (0.23)	ND (0.17)	ND (0.62)	ND (0.072)	ND (0.069)
Acenaphthene	0.00671	mg/kg	11.4	ND (0.049)	ND (0.042)	0.382	ND (0.10)	1.09	ND (0.077)	ND (0.13)	ND (0.10)	ND (0.36)	0.0634 J	ND (0.040)
Acenaphthylene	0.00587	mg/kg	ND (0.48)	ND (0.072)	ND (0.061)	ND (0.15)	ND (0.15)	ND (0.21)	ND (0.11)	ND (0.20)	ND (0.15)	ND (0.53)	0.0684 J	ND (0.059)
Acetophenone	NC	mg/kg	ND (0.20)	ND (0.030)	ND (0.026)	ND (0.065)	ND (0.065)	ND (0.089)	ND (0.048)	ND (0.083)	ND (0.063)	ND (0.22)	ND (0.026)	ND (0.025)
Anthracene	0.0572	mg/kg	ND (0.58)	0.100 J	ND (0.074)	0.588	ND (0.19)	ND (0.25)	ND (0.14)	ND (0.24)	ND (0.18)	ND (0.63)	0.164	ND (0.071)
Atrazine	NC	mg/kg	ND (0.41) *	ND (0.061) *	ND (0.052) *	ND (0.13)	ND (0.13)	ND (0.18)	ND (0.096)	ND (0.17)	ND (0.13)	ND (0.64) *	ND (0.051)	ND (0.050)
Benzo(a)anthracene	0.108	mg/kg	1.27	0.0553 J	ND (0.034)	0.389	ND (0.086)	0.632	ND (0.063)	ND (0.11)	ND (0.083)	1.2	0.0553 J	ND (0.033)
Benzo(a)pyrene	0.15	mg/kg	0.588 J	0.0874 J	ND (0.055)	0.501	ND (0.14)	0.390 J	0.513	ND (0.18)	ND (0.13)	0.768 J	ND (0.055)	ND (0.053)
Benzo(b)fluoranthene	10.4	mg/kg	0.955	0.14	ND (0.053)	0.962	ND (0.13)	0.557	0.752	0.302 J	0.137 J	1.03	ND (0.053)	ND (0.051)
Benzo(g,h,i)perylene	0.17	mg/kg	0.520 J	0.143	ND (0.060)	0.529	ND (0.15)	0.387 J	0.435	0.215 J	ND (0.15)	0.529 J	0.21	ND (0.058)
Benzo(k)fluoranthene	0.24	mg/kg	ND (0.44)	ND (0.066)	ND (0.056)	0.200 J	ND (0.14)	ND (0.19)	0.121 J	ND (0.18)	ND (0.14)	ND (0.48) †	ND (0.056)	ND (0.054)
4-Bromophenyl phenyl ether	NC	mg/kg	ND (0.37)	ND (0.055)	ND (0.047)	ND (0.12)	ND (0.12)	ND (0.16)	ND (0.086)	ND (0.15)	ND (0.11)	ND (0.40)	ND (0.046)	ND (0.045)
Butyl benzyl phthalate	1.97	mg/kg	ND (0.23)	ND (0.035)	ND (0.029)	ND (0.073)	ND (0.074)	ND (0.10)	ND (0.055)	ND (0.094)	ND (0.071)	ND (0.25)	ND (0.029)	ND (0.028)
1,1'-Biphenyl	1.22	mg/kg	1.12 J	ND (0.019)	ND (0.017)	0.0901 J	0.0433 J	ND (0.057)	ND (0.031)	ND (0.053)	ND (0.040)	ND (0.14)	ND (0.016)	ND (0.016)
Benzaldehyde	NC	mg/kg	ND (0.24)	ND (0.035)	ND (0.030)	ND (0.075)	ND (0.075)	ND (0.10)	ND (0.056)	ND (0.096)	ND (0.072)	ND (0.26)	ND (0.030)	ND (0.029)
2-Chloronaphthalene	0.417	mg/kg	ND (0.23)	ND (0.034)	ND (0.029)	ND (0.072)	ND (0.072)	ND (0.099)	ND (0.053)	ND (0.092)	ND (0.070)	ND (0.25)	ND (0.029)	ND (0.028)
4-Chloroaniline	NC	mg/kg	ND (0.34)	ND (0.051)	ND (0.043)	ND (0.11)	ND (0.11)	ND (0.15)	ND (0.081)	ND (0.14)	ND (0.11)	ND (0.37)	ND (0.043)	ND (0.042)
Carbazole	NC	mg/kg	ND (0.14)	ND (0.021)	ND (0.018)	ND (0.044)	ND (0.044)	ND (0.060)	ND (0.032)	ND (0.056)	ND (0.042)	ND (0.15)	ND (0.017)	ND (0.017)
Caprolactam	NC	mg/kg	ND (0.37) †	ND (0.058) †	ND (0.048) †	ND (0.12) †	ND (0.12) †	ND (0.16) †	ND (0.088)	ND (0.15)	ND (0.12)	ND (0.41)	ND (0.047)	ND (0.046)
Chrysene	0.34	mg/kg	2.64	0.419	0.0846 J	1.6	ND (0.095)	2.03	ND (0.070)	ND (0.12)	ND (0.092)	8.01	0.106 J	ND (0.036)
bis(2-Chloroethoxy)methane	NC	mg/kg	ND (0.20)	ND (0.030)	ND (0.026)	ND (0.064)	ND (0.065)	ND (0.089)	ND (0.048)	ND (0.083)	ND (0.063)	ND (0.22)	ND (0.026)	ND (0.025)
bis(2-Chloroethyl)ether	3.52	mg/kg	ND (0.41)	ND (0.061)	ND (0.052)	ND (0.13)	ND (0.13)	ND (0.18)	ND (0.096)	ND (0.17)	ND (0.13)	ND (0.45)	ND (0.052)	ND (0.050)
2,2'-Oxybis(1-chloropropane)	NC	mg/kg	ND (0.34) †	ND (0.051) †	ND (0.043) †	ND (0.11) †	ND (0.11) †	ND (0.15) †	ND (0.080)	ND (0.14)	ND (0.10)	ND (0.37)	ND (0.043)	ND (0.042)
4-Chlorophenyl phenyl ether	NC	mg/kg	ND (0.31)	ND (0.046)	ND (0.039)	ND (0.097)	ND (0.097)	ND (0.13)	ND (0.073)	ND (0.13)	ND (0.095)	ND (0.34)	ND (0.039)	ND (0.038)
2,4-Dinitrotoluene	0.0144	mg/kg	ND (0.29) *	ND (0.044) *	ND (0.037) *	ND (0.093)	ND (0.094)	ND (0.13)	ND (0.069)	ND (0.12)	ND (0.091)	ND (0.32)	ND (0.037)	ND (0.036)
2,6-Dinitrotoluene	NC	mg/kg	ND (0.48)	ND (0.071)	ND (0.061)	ND (0.15)	ND (0.15)	ND (0.21)	ND (0.11)	ND (0.19)	ND (0.15)	ND (0.52)	ND (0.060)	ND (0.058)
3,3'-Dichlorobenzidine	0.127	mg/kg	ND (0.79)	ND (0.12)	ND (0.10)	ND (0.25)	ND (0.25)	ND (0.35)	ND (0.19)	ND (0.32)	ND (0.24)	ND (0.86)	ND (0.10)	ND (0.097)
1,4-Dioxane	NC	mg/kg	ND (0.63)	ND (0.094)	ND (0.080)	ND (0.20) †	ND (0.20) †	ND (0.27) †	ND (0.15)	ND (0.26)	ND (0.19)	ND (0.68)	ND (0.079)	ND (0.077)
Dibenzo(a,h)anthracene	0.033	mg/kg	ND (0.42)	ND (0.063)	ND (0.053)	0.193 J	ND (0.13)	0.189 J	0.206 J	ND (0.17)	ND (0.13)	ND (0.46) †	ND (0.053)	ND (0.051)
Dibenzofuran	0.415	mg/kg	10.2	ND (0.058)	ND (0.049)	0.276 J	ND (0.12)	ND (0.17)	ND (0.091)	ND (0.16)	ND (0.12)	ND (0.42)	ND (0.049)	ND (0.047)
Di-n-butyl phthalate	1.114	mg/kg	ND (0.15)	ND (0.023)	ND (0.020)	ND (0.049)	ND (0.049)	ND (0.067)	ND (0.036)	ND (0.063)	ND (0.048)	ND (0.17)	ND (0.020)	ND (0.019)
Di-n-octyl phthalate	NC	mg/kg	ND (0.24)	ND (0.035)	ND (0.030)	ND (0.075)	ND (0.075)	ND (0.10)	ND (0.056)	ND (0.096)	ND (0.073)	ND (0.26)	ND (0.030)	ND (0.029)
Diethyl phthalate	0.295	mg/kg	ND (0.20)	ND (0.030)	ND (0.026)	ND (0.064)	ND (0.064)	ND (0.088)	ND (0.048)	ND (0.082)	ND (0.062)	ND (0.22)	ND (0.026)	ND (0.025)
Dimethyl phthalate	NC	mg/kg	ND (0.17)	ND (0.025)	ND (0.021)	ND (0.054)	ND (0.054)	ND (0.074)	ND (0.040)	ND (0.069)	ND (0.052)	ND (0.18)	ND (0.021)	ND (0.021)
bis(2-Ethylhexyl)phthalate	0.182	mg/kg	5.81 †	0.188 J †	ND (0.028) †	1.29	ND (0.071)	1.34	0.77	ND (0.090)	ND (0.068) *	3.54	ND (0.028) *	ND (0.027) *
Fluoranthene	0.423	mg/kg	2.39	0.0818 J	ND (0.054)	0.522	ND (0.14)	0.745	ND (0.10)	ND (0.17)	ND (0.13) †	ND (0.46)	ND (0.054) †	ND (0.052) †
Fluorene	0.077	mg/kg	15.2	ND (0.065)	ND (0.055)	0.57	ND (0.14)	2.81	ND (0.10)	ND (0.18)	ND (0.13)	ND (0.47)	0.0923 J	ND (0.053)
Hexachlorobenzene	0.02	mg/kg	ND (0.24)	ND (0.036)	ND (0.031)	ND (0.076)	ND (0.077)	ND (0.10)	ND (0.057)	ND (0.096)	ND (0.074)	ND (0.26)	ND (0.030)	ND (0.029)
Hexachlorobutadiene	0.0265	mg/kg	ND (0.38)	ND (0.057)	ND (0.049)	ND (0.12)	ND (0.12)	ND (0.17)	ND (0.090)	ND (0.16)	ND (0.12) †	ND (0.42) †	ND (0.048) †	ND (0.047) †
Hexachlorocyclopentadiene	0.901	mg/kg	ND (0.38)	ND (0.056)	ND (0.048)	ND (0.12) *	ND (0.12) *	ND (0.16) *	ND (0.089)	ND (0.15)	ND (0.12)	ND (0.41)	ND (0.048)	ND (0.046)
Hexachloroethane	0.584	mg/kg	ND (0.47)	ND (0.070)	ND (0.060)	ND (0.15)	ND (0.15)	ND (0.20)	ND (0.11)	ND (0.19)	ND (0.14) †	ND (0.51) †	ND (0.060) †	ND (0.057) †
Indeno(1,2,3-cd)pyrene	0.2	mg/kg	ND (0.45) *	0.116 J †	ND (0.057) *	0.487	ND (0.14)	0.310 J	0.232	ND (0.18)	ND (0.14)	ND (0.49)	0.0962 J	ND (0.054)
Isophorone	0.432	mg/kg	ND (0.20)	ND (0.030)	ND (0.026)	ND (0.064)	ND (0.065)	ND (0.089)	ND (0.048)	ND (0.083)	ND (0.063)	ND (0.22)	ND (0.026)	ND (0.025)
2-Methylnaphthalene	0.0202	mg/kg	59.2	0.0845 J	ND (0.027)	0.543	0.0709 J	0.725	0.214 J	0.0849 J	ND (0.066)	ND (0.23)	0.208	ND (0.026)
2-Nitroaniline	NC	mg/kg	ND (0.22)	ND (0.033)	ND (0.028)	ND (0.071)	ND (0.071)	ND (0.098)	ND (0.053)	ND (0.091)	ND (0.069)	ND (0.24)	ND (0.028)	ND (0.027)
3-Nitroaniline	NC	mg/kg	ND (0.24)	ND (0.035)	ND (0.030)	ND (0.075)	ND (0.076)	ND (0.10)	ND (0.056)	ND (0.097)	ND (0.073)	ND (0.26)	ND (0.030)	ND (0.029)
4-Nitroaniline	NC	mg/kg	ND (0.25)	ND (0.037)	ND (0.031)	ND (0.078)	ND (0.078)	ND (0.11)	ND (0.058)	ND (0.10)	ND (0.076)	ND (0.27)	ND (0.031)	ND (0.030)
Naphthalene	0.176	mg/kg	6.41	0.0444 J	ND (0.034)	0.109 J	0.0957 J	0.316 J	0.0894 J	ND (0.11)	ND (0.082)	ND (0.29)	0.0806 J	ND (0.033)
Nitrobenzene	0.145	mg/kg	ND (0.37)	ND (0.055)	ND (0.047)	ND (0.12)	ND (0.12)	ND (0.16)	ND (0.086)	ND (0.15)	ND (0.11)	ND (0.40) †	ND (0.046)	ND (0.045)
N-Nitroso-d-n-propylamine	NC	mg/kg	ND (0.27)	ND (0.041)	ND (0.035)	ND (0.087)	ND (0.088)	ND (0.12)	ND (0.065)	ND (0.11)	ND (0.084)	ND (0.30)	ND (0.035)	ND (0.033)
N-Nitrosodiphenylamine	NC	mg/kg	ND (0.35)	ND (0.052)	ND (0.044)	ND (0.11)	ND (0.11)	ND (0.15)	ND (0.082)	ND (0.14)	ND (0.11)	ND (0.38)	ND (0.044)	ND (0.042)
Phenanthrene	0.204	mg/kg	34.4	0.0762 J	ND (0.041)	0.501	ND (0.10)	0.683	ND (0.075)	ND (0.13)	ND (0.098)	ND (0.35)	0.182	ND (0.039)
Pyrene	0.195	mg/kg	4.46	0.18	ND (0.039)	1.77	ND (0.097)	2.7	3.13	0.451	0.171 J	4.7	0.0623 J	ND (0.037)
1,2,4,5-Tetrachlorobenzene	1													



Table 7.3  
Detention Basin Sediment Screening - Ecological Evaluation  
Former Hess Port Reading Terminal Site  
Port Reading, NJ

Client Sample ID:	NJDEP Ecological Sediment - Freshwater Screening Criterion (ER-L or LEL)		SB-1T	SB-2T	SB-3T	SB-4T	SB-5T	SB-6T	SB-7T	SB-8T	SB-9T	SB-10T	SB-11T	SB-12T
Lab Sample ID:			JC77657-1	JC77657-4	JC77657-7	JC77657-12	JC77657-15	JC77657-18	JC77657-21	JC77657-24	JC77814-3	JC77814-6	JC77814-9	JC77814-12
Date Sampled:			11/9/2018	11/9/2018	11/9/2018	11/9/2018	11/9/2018	11/9/2018	11/9/2018	11/9/2018	11/12/2018	11/12/2018	11/12/2018	11/12/2018
Matrix:			Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
GC/LC Semi-volatiles (NJDEP EPH)														
C10-C12 Aromatics	NC	mg/kg	ND (7.7)	ND (5.6)	ND (9.4)	ND (11)	ND (22)	32.4	ND (46)	ND (15)	ND (12)	ND (8.2)	ND (4.7)	ND (8.8)
C12-C16 Aromatics	NC	mg/kg	ND (7.7)	ND (5.6)	ND (9.4)	62.8	ND (22)	304	337	ND (15)	326	130	ND (4.7)	ND (8.8)
C16-C21 Aromatics	NC	mg/kg	56.8	296	988	1200	ND (22)	2280	5830	995	2910	1110	188	ND (8.8)
C21-C36 Aromatics	NC	mg/kg	60.5	624	2050	1920	195	2360	5730	1970	3840	777	462	131
Total Aromatics	NC	mg/kg	117	920	3040	3180	195	4980	11900	2970	7070	2020	650	131
C9-C12 Aliphatics	NC	mg/kg	ND (7.7)	ND (5.6)	ND (9.4)	74.5	ND (22)	240	142	ND (15)	127	83.2	ND (4.7)	ND (8.8)
C12-C16 Aliphatics	NC	mg/kg	71.7	105	513	707	ND (22)	1340	2390	332	2250	703	97.9	ND (8.8)
C16-C21 Aliphatics	NC	mg/kg	96.8	452	1460	2290	ND (22)	3920	7410	1310	4790	1540	285	31.1
C21-C40 Aliphatics	NC	mg/kg	154	831	2600	3670	ND (22)	6650	11800	2590	8560	1700	360	116
Total Aliphatics	NC	mg/kg	322	1390	4580	6740	ND (22)	12200	21700	4240	15700	4020	743	147
Total EPH	NC	mg/kg	440	2310	7620	9920	195	17100	33600	7200	22800	6040	1390	278
Metals Analysis														
Aluminum	25500	mg/kg	15100	9660	18500	25000	27400	25900	23500	29800	18500	10000	18300	19400
Antimony	NC	mg/kg	<12 <sup>a</sup>	<4.4	<7.3	<9.5	<18	<5.0	<6.8	<12	<9.4	<6.2	<7.3 <sup>a</sup>	<6.7
Arsenic	6	mg/kg	38.0 <sup>b</sup>	37.8	58.1	49.7	68.6	54.3	42.8	21.6	23.5	26.7	44.2 <sup>b</sup>	11.5
Barium	NC	mg/kg	301	135	98.4	192	<180	180	210	<120	131	201	350	<67
Beryllium	NC	mg/kg	0.88	0.77	0.84	1.7	<1.8	2.7	1.3	1.7	0.94	0.84	1.9	1.5
Cadmium	0.6	mg/kg	8.1	<1.1	<1.8	6.4	<4.5	26.1	<1.7	<2.9	<2.3	3.9	2.4 <sup>b</sup>	<1.7
Calcium	NC	mg/kg	4960	1660	2330	41700	4730	10100	4850	3600	2600	2870	4640	1870
Chromium	26	mg/kg	3180 <sup>b</sup>	241	112	538	75.5	495	828	273	96.4	1310	2550 <sup>b</sup>	115
Cobalt	50	mg/kg	44.1	<11	<18	<24	<45	40.4	17.3	<29	<23	<16	20.2	<17
Copper	16	mg/kg	820	97.2	269	276	365	427	283	125	361	276	358 <sup>b</sup>	33.3
Iron	20000	mg/kg	31700	23000	15100	52100	23900	66800	40900	25400	13300	22000	38200 <sup>b</sup>	31600
Lead	31	mg/kg	776	101	184	238	211	273 <sup>b</sup>	367	163	284	265	208 <sup>b</sup>	67.5
Magnesium	NC	mg/kg	4340	1890	4670	8640	6640	10800	6630	7670	4470	2520	3290	6680
Manganese	630	mg/kg	257	86.3	126	354	159	400 <sup>b</sup>	186	240	127	110	194 <sup>b</sup>	255
Mercury	0.174	mg/kg	0.52	1.3	0.28	0.63	0.33	0.52	1.9	2.4	0.95	1.1	1.6	0.22
Nickel	16	mg/kg	98.6	33.1	28.5	116	69.9	144	166	74.5	30.8	41	95	26.8
Potassium	NC	mg/kg	<3000	<2200	4260	<4800	<9100	3710	<3400	<5900	<4700	<3100	<1800	4060
Selenium	2	mg/kg	<6.1	<4.4	8.2	<9.5	<18	<9.9 <sup>b</sup>	<6.8	<12	<9.4	<6.2	<7.3 <sup>b</sup>	<6.7
Silver	0.5	mg/kg	3.3	<1.1	<1.8	<2.4	<4.5	<2.5 <sup>b</sup>	2.6	<2.9	<2.3	2.3	<1.8 <sup>b</sup>	3.2
Sodium	NC	mg/kg	4610	<2200	4950	<4800	<9100	4430	<3400	8030	<4700	<3100	<1800	6580
Thallium	NC	mg/kg	<3.0	<2.2	<3.7	<4.8	<9.1	<5.0 <sup>b</sup>	<3.4	<5.9	<4.7	<3.1	<3.6 <sup>b</sup>	<3.4
Vanadium	NC	mg/kg	164	53.8	74.1	140	91.3	122	177	94.9	79.3	113	344 <sup>b</sup>	68
Zinc	120	mg/kg	3480 <sup>b</sup>	186	151	924	1520	2920 <sup>b</sup>	382	323	208	758	1110 <sup>b</sup>	73.1
General Chemistry														
3 Inch Sieve	NC	%	100	100	100	100	100	-	-	-	100	100	100	100
1.5 Inch Sieve	NC	%	100	100	100	100	100	-	-	-	100	100	100	100
0.75 Inch Sieve	NC	%	100	100	100	100	100	-	-	-	100	100	100	100
0.375 Inch Sieve	NC	%	100	100	100	100	100	-	-	-	100	100	100	100
No.4 Sieve (4.75 mm)	NC	%	100	100	100	100	100	-	-	-	100	98.6	100	100
No.8 Sieve (2.36 mm)	NC	%	100	98.3	100	100	93.1	-	-	-	100	97.3	100	100
No.10 Sieve (2.00 mm)	NC	%	100	97.5	100	100	89.9	-	-	-	100	96.8	100	100
No.16 Sieve (1.18 mm)	NC	%	96.4	97.1	99.9	100	88.2	-	-	-	99.9	92.2	96.6	99.9
No.30 Sieve (0.60 mm)	NC	%	85.7	93.5	99	98.5	84.3	-	-	-	99.4	82.9	91.5	99.5
No.50 Sieve (0.30 mm)	NC	%	77.2	70.4	97.6	96.1	79.7	-	-	-	98.5	71.3	87.5	99.3
No.100 Sieve (0.15 mm)	NC	%	70.8	50.8	96.1	92.2	77.2	-	-	-	97.2	63.4	84.3	99
No.200 Sieve (0.075 mm)	NC	%	65.6	47.3	95.1	87.5	75.7	-	-	-	96.6	62.2	82.2	98.9
0.030 mm (Hydrometer)	NC	%	58	36	70	56	46	-	-	-	54	30	52	70
0.005 mm (Hydrometer)	NC	%	22	10	30	20	24	-	-	-	30	13.3	11	30
0.0015 mm (Hydrometer)	NC	%	12	9	20	10	14	-	-	-	10	10	6	16.6
% Gravel	NC	%	0	0	0	0	0	-	-	-	0	1.4	0	0
% Sand	NC	%	34.4	52.8	4.9	12.5	24.3	-	-	-	3.4	36.4	17.8	1.1
% Silt, Clay, Colloids	NC	%	65.6	47.3	95.1	87.5	75.7	-	-	-	96.6	62.2	82.2	98.9
Chloride	NC	mg/kg	1830	404	5540	1080	11600	3900	563	8170	2300	202	453	6030
Nitrogen, Ammonia	NC	mg/kg	185	66.5	180	229	289	192	148	183	162	78.6	124	154
Nitrogen, Nitrate	NC	mg/kg	<61 <sup>a</sup>	<44 <sup>c</sup>	<82 <sup>c</sup>	<92 <sup>c</sup>	<190 <sup>c</sup>	<53 <sup>c</sup>	<69 <sup>c</sup>	<120 <sup>c</sup>	<95 <sup>c</sup>	<62 <sup>c</sup>	<36 <sup>c</sup>	<70 <sup>c</sup>
Nitrogen, Nitrate + Nitrite	NC	mg/kg	<60	<44	<75	<91	<190	<52	<68	<120	<94	<61	<36	<69
Nitrogen, Nitrite	NC	mg/kg	0.81	0.61	<6.9	<0.91	<1.8	<0.51	0.67	<1.2	<0.91	<0.62	<0.37	<0.70
Solids, Percent	NC	%	34.2	46.1	26.3	22.1	10.9	38.7	29.3	16.7	21.8	31.6	54	28.5
Total Organic Carbon	NC	mg/kg	95100	57400	127000	124000 <sup>i</sup>	234000	107000	226000 <sup>i</sup>	253000 <sup>i</sup>	95000 <sup>i</sup>	208000 <sup>i</sup>	89300 <sup>i</sup>	83300 <sup>i</sup>
pH	NC	su	8.05	6.92	6.63	7.57	6.9	7.31	6.88	6.9	7.04	7.36	7.12	6.93

**Footnotes:**

a Associated CCV outside of control limits high; sample was ND.  
b This compound in BS is outside in house QC limits bias high.  
c Calculated as: (Nitrogen, Nitrate + Nitrite) - (Nitrogen, Nitrite)  
d Sample received out of holding time for pH analysis.  
e This compound in BS is outside in house QC limits bias high.  
f Associated CCV outside of control limits low.  
g Associated CCV outside of control limits high.  
h Elevated detection limit due to dilution required for high interfering  
i Multiple injections indicate possible sample non-homogeneity.  
j Analysis done out of holding time.

NC: No Criteria  
BLUE: Compound Detected, No Criteria  
GREEN: Compound Detected, Non-Toxic  
ORANGE: Exceedance, Result > Criteria

Table 7.4  
Smith Creek & Pond Sediment Screening - Ecological Evaluation  
Former Hess Port Reading Terminal Site  
Port Reading, New Jersey

Client Sample ID:	NJDEP Ecological Sediment - Saline Water Screening Criterion (ER-L or LEL)		SS-13A	SS-14A	SS-15A	SS-16A	SS-17A	SS-18A	SS-19A	SS-20A	SS-21A	SS-22A	SS-23A	SS-24A	SS-25A	SS-26A	SS-27A	SS-28A	SS-29A	SS-30A	SS-31A	SS-32A	SS-33A	SS-34A	SS-35A	
Lab Sample ID:			JC83457-13	JC83501-12	JC83457-10	JC83595-18	JC83595-12	JC83595-15	JC83683-2	JC83683-5	JC83683-8	JC83841-18	JC83841-15	JC83841-12	JC83223-1	JC83313-1	JC83223-7	JC83223-4	JC83313-4	JC83223-12	JC83313-10	JC83313-7	JC83223-15	JC83313-13	JC83313-16	
Date Sampled:			2/26/2019	2/27/2019	2/26/2019	2/28/2019	2/28/2019	2/28/2019	3/1/2019	3/1/2019	3/1/2019	3/5/2019	3/5/2019	3/5/2019	2/21/2019	2/22/2019	2/21/2019	2/21/2019	2/22/2019	2/21/2019	2/22/2019	2/21/2019	2/22/2019	2/21/2019	2/22/2019	
Matrix:			Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
MS Volatiles (SW846 8260C)																										
Acetone	NC	mg/kg	0.14	0.247	0.0572	0.0978	0.0867	0.124	0.0323	0.0293	0.0597	0.0773	0.0617	0.0475	0.0741	0.0195 J	0.0338	0.0537	0.075	0.0396	0.0431	0.0204	0.0404	0.0317	0.0641	
Benzene	0.34	mg/kg	ND (0.0011)	ND (0.0022)	ND (0.0015)	ND (0.0012)	ND (0.0013)	ND (0.0011)	ND (0.00087)	ND (0.00075)	ND (0.00087)	ND (0.00094)	ND (0.00043)	ND (0.00091)	ND (0.0018)	ND (0.00087)	ND (0.00066)	ND (0.0012)	ND (0.0012)	ND (0.00081)	ND (0.00078)	ND (0.00059)	ND (0.00086)	ND (0.00054)	ND (0.00093)	
Bromochloromethane	NC	mg/kg	ND (0.0013)	ND (0.0025)	ND (0.0017)	ND (0.0014)	ND (0.0015)	ND (0.0013)	ND (0.00099)	ND (0.00086)	ND (0.00099)	ND (0.0011)	ND (0.00049)	ND (0.0010)	ND (0.0021)	ND (0.00099)	ND (0.00075)	ND (0.0013)	ND (0.0014)	ND (0.00092)	ND (0.00089)	ND (0.00067)	ND (0.00098)	ND (0.00061)	ND (0.0011)	
Bromodichloromethane	NC	mg/kg	ND (0.0013)	ND (0.0026)	ND (0.0018)	ND (0.0014)	ND (0.0015)	ND (0.0013)	ND (0.0010)	ND (0.00089)	ND (0.0010)	ND (0.0011)	ND (0.00051)	ND (0.0011)	ND (0.0021)	ND (0.0010)	ND (0.00077)	ND (0.0014)	ND (0.0014)	ND (0.00095)	ND (0.00092)	ND (0.00069)	ND (0.0010)	ND (0.00063)	ND (0.0011)	
Bromoform	NC	mg/kg	ND (0.0012)	ND (0.0023)	ND (0.0016)	ND (0.0013)	ND (0.0014)	ND (0.0012)	ND (0.00093)	ND (0.00081)	ND (0.00093)	ND (0.0010)	ND (0.00046)	ND (0.00097)	ND (0.0019)	ND (0.00093)	ND (0.00070)	ND (0.0012)	ND (0.0013)	ND (0.00087)	ND (0.00083)	ND (0.00063)	ND (0.00092)	ND (0.00058)	ND (0.00099)	
Bromomethane	NC	mg/kg	ND (0.0030) <sup>b</sup>	ND (0.0058)	ND (0.0040)	ND (0.0032)	ND (0.0034)	ND (0.0030)	ND (0.0023) <sup>b</sup>	ND (0.0020) <sup>b</sup>	ND (0.0023) <sup>b</sup>	ND (0.0025)	ND (0.0011)	ND (0.0024)	ND (0.0048)	ND (0.0023)	ND (0.0017)	ND (0.0030)	ND (0.0032)	ND (0.0021)	ND (0.0021) <sup>a</sup>	ND (0.0015) <sup>a</sup>	ND (0.0023)	ND (0.0014) <sup>a</sup>	ND (0.0024) <sup>a</sup>	
2-Butanone (MEK)	NC	mg/kg	0.0206 J	ND (0.022) <sup>a</sup>	ND (0.015)	ND (0.012)	ND (0.013)	ND (0.011)	ND (0.0086)	ND (0.0075)	ND (0.0086)	ND (0.0093)	ND (0.0043)	ND (0.0090)	ND (0.018)	ND (0.0086)	ND (0.0065)	ND (0.011)	ND (0.012)	ND (0.0080)	ND (0.0077)	ND (0.0058)	ND (0.0085)	ND (0.0053)	ND (0.0092)	
Carbon disulfide	NC	mg/kg	0.0036 J	0.0115 J	0.0096	0.0072	0.0075	0.0064	0.0068	0.0075	0.0095	0.0039 J	ND (0.0011)	0.0063	0.0177	0.0031 J	0.0028 J	0.0157	0.0066	0.0165	0.0162	0.0018 J	0.012	0.0036	0.0091	
Carbon tetrachloride	NC	mg/kg	ND (0.0017)	ND (0.0032)	ND (0.0022)	ND (0.0018)	ND (0.0019)	ND (0.0016)	ND (0.0013)	ND (0.0011)	ND (0.0013)	ND (0.0014)	ND (0.00063)	ND (0.0013)	ND (0.0026)	ND (0.0013)	ND (0.00096)	ND (0.0017)	ND (0.0017)	ND (0.0012)	ND (0.0011)	ND (0.00086)	ND (0.0013)	ND (0.00079)	ND (0.0013)	
Chlorobenzene	0.291	mg/kg	ND (0.0011)	ND (0.0021)	ND (0.0014)	ND (0.0011)	ND (0.0012)	ND (0.0011)	ND (0.00082)	ND (0.00071)	ND (0.00081)	ND (0.00088)	ND (0.00040)	ND (0.00085)	ND (0.0017)	ND (0.00082)	ND (0.00062)	ND (0.0011)	ND (0.0011)	ND (0.00073)	ND (0.00055)	ND (0.00081)	ND (0.00051)	ND (0.00087)		
Chloroethane	NC	mg/kg	ND (0.0021)	ND (0.0040)	ND (0.0027)	ND (0.0022)	ND (0.0024)	ND (0.0021)	ND (0.0016)	ND (0.0014)	ND (0.0016)	ND (0.0017)	ND (0.00078)	ND (0.0017)	ND (0.0033)	ND (0.0016)	ND (0.0012)	ND (0.0021)	ND (0.0022)	ND (0.0015)	ND (0.0014) <sup>a</sup>	ND (0.0011) <sup>a</sup>	ND (0.0016)	ND (0.00098) <sup>a</sup>	ND (0.0017) <sup>a</sup>	
Chloroform	NC	mg/kg	ND (0.0011)	ND (0.0022)	ND (0.0015)	ND (0.0012)	ND (0.0013)	ND (0.0011)	ND (0.00086)	ND (0.00074)	ND (0.00085)	ND (0.00093)	ND (0.00042)	ND (0.00089)	ND (0.0018)	ND (0.00086)	ND (0.00065)	ND (0.0011)	ND (0.0012)	ND (0.00080)	ND (0.00077)	ND (0.00058)	ND (0.00085)	ND (0.00053)	ND (0.00091)	
Chloromethane	NC	mg/kg	ND (0.0060)	ND (0.011)	ND (0.0078)	ND (0.0063)	ND (0.0067)	ND (0.0059)	ND (0.0045)	ND (0.0039)	ND (0.0045)	ND (0.0049)	ND (0.0022)	ND (0.0047)	ND (0.0094)	ND (0.0045)	ND (0.0034)	ND (0.0060)	ND (0.0062)	ND (0.0042)	ND (0.0041) <sup>a</sup>	ND (0.0030) <sup>a</sup>	ND (0.0045)	ND (0.0028) <sup>a</sup>	ND (0.0048) <sup>a</sup>	
Cyclohexane	NC	mg/kg	ND (0.0012)	ND (0.0024)	ND (0.0016)	ND (0.0013)	ND (0.0014)	ND (0.0012)	ND (0.00093)	ND (0.00081)	ND (0.00093)	ND (0.0010)	ND (0.00046)	ND (0.00098)	ND (0.0019)	ND (0.00093)	ND (0.00071)	ND (0.0012)	ND (0.0013)	ND (0.00087)	ND (0.00084)	ND (0.00063)	ND (0.00058)	ND (0.0010)		
1,2-Dibromo-3-chloropropane	NC	mg/kg	ND (0.0025)	ND (0.0049)	ND (0.0033)	ND (0.0027)	ND (0.0029)	ND (0.0025)	ND (0.0019)	ND (0.0017)	ND (0.0019)	ND (0.0021)	ND (0.00095)	ND (0.0020)	ND (0.0040)	ND (0.0019)	ND (0.0015)	ND (0.0026)	ND (0.0027)	ND (0.0018)	ND (0.0017)	ND (0.0013)	ND (0.0019)	ND (0.0012)	ND (0.0021)	
Dibromochloromethane	NC	mg/kg	ND (0.0010)	ND (0.0020)	ND (0.0013)	ND (0.0011)	ND (0.0012)	ND (0.0010)	ND (0.00078)	ND (0.00068)	ND (0.00078)	ND (0.00084)	ND (0.00039)	ND (0.00081)	ND (0.0016)	ND (0.00078)	ND (0.00059)	ND (0.0010)	ND (0.0011)	ND (0.00073)	ND (0.00070)	ND (0.00053)	ND (0.00077)	ND (0.00048)	ND (0.00083)	
1,2-Dibromoethane	NC	mg/kg	ND (0.00099)	ND (0.0019)	ND (0.0013)	ND (0.0010)	ND (0.0011)	ND (0.00097)	ND (0.00075)	ND (0.00065)	ND (0.00075)	ND (0.00081)	ND (0.00037)	ND (0.00078)	ND (0.0016)	ND (0.00075)	ND (0.00057)	ND (0.00099)	ND (0.0010)	ND (0.00070)	ND (0.00067)	ND (0.00051)	ND (0.00074)	ND (0.00046)	ND (0.00080)	
1,2-Dichlorobenzene	0.294	mg/kg	ND (0.00093)	ND (0.0018)	ND (0.0012)	ND (0.00098)	ND (0.0010)	ND (0.00091)	ND (0.00070)	ND (0.00061)	ND (0.00070)	ND (0.00076)	ND (0.00035)	ND (0.00073)	ND (0.0015)	ND (0.00070)	ND (0.00053)	ND (0.00093)	ND (0.00097)	ND (0.00066)	ND (0.00063)	ND (0.00047)	ND (0.00069)	ND (0.00044)	ND (0.00075)	
1,3-Dichlorobenzene	1.315	mg/kg	ND (0.0011)	ND (0.0021)	ND (0.0014)	ND (0.0011)	ND (0.0012)	ND (0.0011)	ND (0.00083)	ND (0.00072)	ND (0.00082)	ND (0.00090)	ND (0.00041)	ND (0.00086)	ND (0.0017)	ND (0.00083)	ND (0.00063)	ND (0.0011)	ND (0.0011)	ND (0.00077)	ND (0.00074)	ND (0.00056)	ND (0.00082)	ND (0.00051)	ND (0.00088)	
1,4-Dichlorobenzene	0.318	mg/kg	0.0012 J	ND (0.0020)	ND (0.0014)	ND (0.0011)	ND (0.0012)	ND (0.0010)	ND (0.00079)	ND (0.00069)	ND (0.00079)	ND (0.00086)	ND (0.00039)	ND (0.00083)	ND (0.0016)	ND (0.00079)	ND (0.00060)	ND (0.0011)	ND (0.0011)	ND (0.00074)	ND (0.00071)	ND (0.00054)	ND (0.00078)	ND (0.00049)	ND (0.00084)	
Dichlorodifluoromethane	NC	mg/kg	ND (0.0019)	ND (0.0037)	ND (0.0025)	ND (0.0020)	ND (0.0022)	ND (0.0019)	ND (0.0015)	ND (0.0013)	ND (0.0015)	ND (0.0015)	ND (0.0016) <sup>a</sup>	ND (0.00072) <sup>a</sup>	ND (0.0015) <sup>a</sup>	ND (0.0030)	ND (0.0015)	ND (0.0011)	ND (0.0019)	ND (0.0020)	ND (0.0014)	ND (0.0013)	ND (0.00099)	ND (0.0014)	ND (0.0016)	
1,1-Dichloroethane	NC	mg/kg	ND (0.0012)	ND (0.0022)	ND (0.0015)	ND (0.0012)	ND (0.0013)	ND (0.0012)	ND (0.00089)	ND (0.00077)	ND (0.00089)	ND (0.00096)	ND (0.00044)	ND (0.00092)	ND (0.0018)	ND (0.00089)	ND (0.00067)	ND (0.0012)	ND (0.0012)	ND (0.00083)	ND (0.00080)	ND (0.00055)	ND (0.00088)	ND (0.00055)	ND (0.00094)	
1,2-Dichloroethane	NC	mg/kg	ND (0.0014)	ND (0.0027)	ND (0.0019)	ND (0.0015)	ND (0.0016)	ND (0.0014)	ND (0.0011)	ND (0.00094)	ND (0.0011)	ND (0.0012)	ND (0.00054)	ND (0.0011)	ND (0.0022)	ND (0.0011)	ND (0.00082)	ND (0.0014)	ND (0.0015)	ND (0.0010)	ND (0.00097)	ND (0.00073)	ND (0.0011)	ND (0.00067)	ND (0.0012)	
1,1-Dichloroethene	NC	mg/kg	ND (0.0020)	ND (0.0038)	ND (0.0026)	ND (0.0021)	ND (0.0023)	ND (0.0020)	ND (0.0015)	ND (0.0013)	ND (0.0015)	ND (0.0016)	ND (0.00075)	ND (0.0016)	ND (0.0031)	ND (0.0015)	ND (0.0011)	ND (0.0020)	ND (0.0021)	ND (0.0014)	ND (0.0014)	ND (0.0010)	ND (0.0015)	ND (0.00094)	ND (0.0016)	
cis-1,2-Dichloroethene	NC	mg/kg	ND (0.0029)	ND (0.0056)	ND (0.0038)	ND (0.0031)	ND (0.00.																			

Table 7.4  
Smith Creek & Pond Sediment Screening - Ecological Evaluation  
Former Hess Port Reading Terminal Site  
Port Reading, New Jersey

Client Sample ID:	NJDEP Ecological Sediment - Saline Water Screening Criterion (ER-L or LEL)		SS-13A	SS-14A	SS-15A	SS-16A	SS-17A	SS-18A	SS-19A	SS-20A	SS-21A	SS-22A	SS-23A	SS-24A	SS-25A	SS-26A	SS-27A	SS-28A	SS-29A	SS-30A	SS-31A	SS-32A	SS-33A	SS-34A	SS-35A	
Lab Sample ID:			JC83457-13	JC83501-12	JC83457-10	JC83595-18	JC83595-12	JC83595-15	JC83683-2	JC83683-5	JC83683-8	JC83841-18	JC83841-15	JC83841-12	JC83223-1	JC83313-1	JC83223-7	JC83223-4	JC83313-4	JC83223-12	JC83313-10	JC83313-7	JC83223-15	JC83313-13	JC83313-16	
Date Sampled:			2/26/2019	2/27/2019	2/26/2019	2/28/2019	2/28/2019	2/28/2019	3/1/2019	3/1/2019	3/1/2019	3/5/2019	3/5/2019	3/5/2019	2/21/2019	2/22/2019	2/21/2019	2/21/2019	2/22/2019	2/21/2019	2/22/2019	2/22/2019	2/21/2019	2/22/2019	2/22/2019	
Matrix:			Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
MS Semi-volatiles (SW846 8270D)																										
2-Chlorophenol	0.008	mg/kg	ND (0.037)	ND (0.053)	ND (0.045)	ND (0.033)	ND (0.041)	ND (0.035)	ND (0.031)	ND (0.029)	ND (0.025)	ND (0.030)	ND (0.022)	ND (0.032)	ND (0.041)	ND (0.035)	ND (0.031)	ND (0.035)	ND (0.039)	ND (0.029)	ND (0.032)	ND (0.028)	ND (0.031)	ND (0.026)	ND (0.032)	
4-Chloro-3-methyl phenol	NC	mg/kg	ND (0.045)	ND (0.066)	ND (0.056)	ND (0.041) <sup>a</sup>	ND (0.051) <sup>a</sup>	ND (0.043) <sup>a</sup>	ND (0.038)	ND (0.036)	ND (0.031)	ND (0.038) <sup>a</sup>	ND (0.027) <sup>a</sup>	ND (0.040) <sup>a</sup>	ND (0.050)	ND (0.044)	ND (0.039)	ND (0.043)	ND (0.049)	ND (0.036)	ND (0.039)	ND (0.035)	ND (0.038)	ND (0.032)	ND (0.039)	
2,4-Dichlorophenol	0.005	mg/kg	ND (0.063)	ND (0.092)	ND (0.078)	ND (0.058)	ND (0.072)	ND (0.060)	ND (0.053)	ND (0.050)	ND (0.043)	ND (0.052)	ND (0.037)	ND (0.055)	ND (0.070)	ND (0.061)	ND (0.054)	ND (0.060)	ND (0.068)	ND (0.051)	ND (0.055)	ND (0.049)	ND (0.053)	ND (0.044)	ND (0.054)	
2,4-Dimethylphenol	0.304	mg/kg	ND (0.13)	ND (0.19)	ND (0.16)	ND (0.12)	ND (0.15)	ND (0.12)	ND (0.11)	ND (0.11)	ND (0.090)	ND (0.11)	ND (0.078)	ND (0.12)	ND (0.15)	ND (0.13)	ND (0.11)	ND (0.12)	ND (0.14)	ND (0.11)	ND (0.11)	ND (0.10)	ND (0.11)	ND (0.092)	ND (0.11)	
2,4-Dinitrophenol	0.00621	mg/kg	ND (0.28)	ND (0.41)	ND (0.34)	ND (0.25)	ND (0.32)	ND (0.26)	ND (0.23)	ND (0.22)	ND (0.19)	ND (0.23)	ND (0.16)	ND (0.24)	ND (0.31)	ND (0.27)	ND (0.24)	ND (0.26)	ND (0.30)	ND (0.22)	ND (0.24)	ND (0.22)	ND (0.23)	ND (0.19)	ND (0.24)	
4,6-Dinitro-o-cresol	NC	mg/kg	ND (0.079)	ND (0.12)	ND (0.098)	ND (0.072)	ND (0.090)	ND (0.075)	ND (0.067)	ND (0.063)	ND (0.054)	ND (0.065)	ND (0.047)	ND (0.070)	ND (0.088)	ND (0.076)	ND (0.067)	ND (0.075)	ND (0.085)	ND (0.063)	ND (0.069)	ND (0.062)	ND (0.066)	ND (0.055)	ND (0.068)	
2-Methylphenol	NC	mg/kg	ND (0.047)	ND (0.069)	ND (0.059)	ND (0.043)	ND (0.054)	ND (0.045)	ND (0.040)	ND (0.038)	ND (0.032)	ND (0.039)	ND (0.028)	ND (0.042)	ND (0.053)	ND (0.045)	ND (0.040)	ND (0.045)	ND (0.051)	ND (0.038)	ND (0.041)	ND (0.037)	ND (0.040)	ND (0.033)	ND (0.041)	
3&4-Methylphenol	NC	mg/kg	0.103 J	ND (0.089)	ND (0.075)	ND (0.056)	ND (0.069)	ND (0.058)	ND (0.051)	ND (0.049)	ND (0.042)	ND (0.050)	ND (0.036)	ND (0.053) <sup>b</sup>	ND (0.068)	ND (0.058)	ND (0.052)	ND (0.058)	ND (0.066)	ND (0.049)	ND (0.053)	ND (0.047)	ND (0.051)	ND (0.043)	ND (0.053)	
2-Nitrophenol	NC	mg/kg	ND (0.049)	ND (0.071) <sup>a</sup>	ND (0.061)	ND (0.045)	ND (0.056)	ND (0.046)	ND (0.041)	ND (0.039)	ND (0.033)	ND (0.040)	ND (0.029)	ND (0.043) <sup>a</sup>	ND (0.054)	ND (0.047)	ND (0.042) <sup>a</sup>	ND (0.046)	ND (0.053)	ND (0.039) <sup>a</sup>	ND (0.042)	ND (0.038)	ND (0.041) <sup>a</sup>	ND (0.034)	ND (0.042)	
4-Nitrophenol	0.0133	mg/kg	ND (0.20) <sup>b</sup>	ND (0.29) <sup>a</sup>	ND (0.24) <sup>b</sup>	ND (0.18) <sup>a</sup>	ND (0.22) <sup>a</sup>	ND (0.19) <sup>a</sup>	ND (0.17)	ND (0.16)	ND (0.14)	ND (0.16)	ND (0.12)	ND (0.17)	ND (0.22)	ND (0.19) <sup>a</sup>	ND (0.17)	ND (0.19)	ND (0.21)	ND (0.16)	ND (0.17)	ND (0.15)	ND (0.17)	ND (0.14) <sup>c</sup>	ND (0.17) <sup>c</sup>	
Pentachlorophenol	0.017	mg/kg	ND (0.069)	ND (0.10)	ND (0.086)	ND (0.064)	ND (0.079)	ND (0.066)	ND (0.058)	ND (0.056)	ND (0.047)	ND (0.057)	ND (0.041)	ND (0.061)	ND (0.077)	ND (0.067)	ND (0.059)	ND (0.066)	ND (0.075)	ND (0.056)	ND (0.060)	ND (0.054)	ND (0.058)	ND (0.049)	ND (0.060)	
Phenol	0.13	mg/kg	ND (0.039)	ND (0.056)	ND (0.048)	ND (0.035)	ND (0.044)	ND (0.037)	ND (0.033)	ND (0.031)	ND (0.026)	ND (0.032)	ND (0.023)	ND (0.034)	ND (0.043)	ND (0.037)	ND (0.033)	ND (0.037)	ND (0.042)	ND (0.031)	ND (0.034)	ND (0.030)	ND (0.032)	ND (0.027)	ND (0.033)	
2,3,4,6-Tetrachlorophenol	NC	mg/kg	ND (0.049) <sup>a</sup>	ND (0.071)	ND (0.061) <sup>a</sup>	ND (0.045)	ND (0.056)	ND (0.046)	ND (0.041)	ND (0.039)	ND (0.033)	ND (0.041)	ND (0.029)	ND (0.043)	ND (0.054)	ND (0.047)	ND (0.042) <sup>a</sup>	ND (0.046)	ND (0.053)	ND (0.039) <sup>a</sup>	ND (0.043)	ND (0.038)	ND (0.041) <sup>a</sup>	ND (0.034)	ND (0.042)	
2,4,5-Trichlorophenol	NC	mg/kg	ND (0.055)	ND (0.081)	ND (0.069)	ND (0.051)	ND (0.063)	ND (0.052)	ND (0.047)	ND (0.044)	ND (0.038)	ND (0.046)	ND (0.033)	ND (0.049)	ND (0.062)	ND (0.053)	ND (0.047) <sup>a</sup>	ND (0.052)	ND (0.060)	ND (0.044) <sup>a</sup>	ND (0.048)	ND (0.043)	ND (0.046) <sup>a</sup>	ND (0.039)	ND (0.048)	
2,4,6-Trichlorophenol	0.006	mg/kg	ND (0.044)	ND (0.064)	ND (0.055)	ND (0.040)	ND (0.050)	ND (0.042)	ND (0.037)	ND (0.035)	ND (0.030)	ND (0.036)	ND (0.026)	ND (0.039)	ND (0.049)	ND (0.042)	ND (0.038)	ND (0.042)	ND (0.048)	ND (0.035)	ND (0.038)	ND (0.034)	ND (0.037)	ND (0.031)	ND (0.038)	
Acenaphthene	0.016	mg/kg	0.134	ND (0.037)	ND (0.032)	ND (0.023)	ND (0.029)	ND (0.024)	ND (0.021)	ND (0.020)	ND (0.017)	ND (0.021)	ND (0.015)	ND (0.022)	ND (0.028)	ND (0.024)	ND (0.022)	ND (0.024)	ND (0.028)	ND (0.020)	ND (0.022)	ND (0.020)	ND (0.021)	ND (0.018)	ND (0.022)	
Acenaphthylene	0.044	mg/kg	0.102	ND (0.055)	ND (0.047)	ND (0.034)	ND (0.043)	ND (0.036)	ND (0.032)	ND (0.030)	ND (0.026)	ND (0.031)	ND (0.022)	ND (0.033)	ND (0.042)	ND (0.036)	ND (0.032)	ND (0.036)	ND (0.041)	ND (0.030)	ND (0.033)	ND (0.029)	ND (0.031)	ND (0.026)	ND (0.032)	
Acetophenone	NC	mg/kg	ND (0.016)	ND (0.023)	ND (0.020)	ND (0.015)	ND (0.018)	ND (0.015)	ND (0.013)	ND (0.013)	ND (0.011)	ND (0.013)	ND (0.0094)	ND (0.014) <sup>b</sup>	ND (0.018)	ND (0.015)	ND (0.014)	ND (0.015)	ND (0.017)	ND (0.013)	ND (0.014)	ND (0.012)	ND (0.013)	ND (0.011)	ND (0.014)	
Anthracene	0.085	mg/kg	0.351	ND (0.066)	ND (0.056)	ND (0.041)	ND (0.051)	ND (0.043)	ND (0.038)	ND (0.036)	ND (0.031)	ND (0.038)	ND (0.027)	ND (0.040)	ND (0.050)	ND (0.044)	0.0421 J	ND (0.043)	ND (0.049)	ND (0.036)	ND (0.039)	ND (0.035)	ND (0.038)	ND (0.032)	ND (0.039)	
Atrazine	NC	mg/kg	ND (0.032)	ND (0.046) <sup>a</sup>	ND (0.039)	ND (0.029)	ND (0.036)	ND (0.030)	ND (0.027)	ND (0.025) <sup>a</sup>	ND (0.022) <sup>a</sup>	ND (0.026)	ND (0.019)	ND (0.028)	ND (0.035)	ND (0.030)	ND (0.027)	ND (0.030)	ND (0.034)	ND (0.025)	ND (0.027)	ND (0.025)	ND (0.027)	ND (0.022)	ND (0.027)	
Benzo(a)anthracene	0.261	mg/kg	0.329	0.0703 J	0.0858 J	ND (0.019)	0.149	0.0453 J	0.0206 J	0.0749	0.0269 J	ND (0.017)	ND (0.012)	0.0436 J	0.0521 J	ND (0.020)	0.0952	0.0310 J	0.0551 J	0.0481 J	0.0215 J	0.0455 J	0.127	0.0226 J	0.0550 J	
Benzo(a)pyrene	0.43	mg/kg	0.316	0.0591 J <sup>d</sup>	0.213	ND (0.031)	0.166	0.0491 J	ND (0.028)	0.0735	0.0239 J	ND (0.028)	ND (0.020)	0.0401 J	0.0525 J	ND (0.032)	0.102 <sup>d</sup>	ND (0.032)	0.0574 J	0.0555 J <sup>d</sup>	ND (0.029)	0.0541 J	0.174 <sup>d</sup>	0.0241 J	0.0739	
Benzo(b)fluoranthene	1.8	mg/kg	0.301	0.0778 J <sup>d</sup>	0.102	ND (0.030)	0.216	0.0613 J	ND (0.028)	0.108	0.0275 J	ND (0.027)	ND (0.019)	0.0501 J <sup>d</sup>	0.0598 J	ND (0.031) <sup>a</sup>	0.14	ND (0.031)	0.0684 J	0.0584 J	ND (0.028)	0.07	0.163	0.0285 J <sup>d</sup>	0.116 <sup>d</sup>	
Benzo(g,h,i)perylene	0.17	mg/kg	0.194	ND (0.054)	0.0743 J	ND (0																				

Table 7.4  
Smith Creek & Pond Sediment Screening - Ecological Evaluation  
Former Hess Port Reading Terminal Site  
Port Reading, New Jersey

Client Sample ID:	NJDEP Ecological Sediment - Saline Water Screening Criterion (ER-L or LEL)		SS-13A	SS-14A	SS-15A	SS-16A	SS-17A	SS-18A	SS-19A	SS-20A	SS-21A	SS-22A	SS-23A	SS-24A	SS-25A	SS-26A	SS-27A	SS-28A	SS-29A	SS-30A	SS-31A	SS-32A	SS-33A	SS-34A	SS-35A	
Lab Sample ID:			JC83457-13	JC83501-12	JC83457-10	JC83595-18	JC83595-12	JC83595-15	JC83683-2	JC83683-5	JC83683-8	JC83841-18	JC83841-15	JC83841-12	JC83223-1	JC83313-1	JC83223-7	JC83223-4	JC83313-4	JC83223-12	JC83313-10	JC83313-7	JC83223-15	JC83313-13	JC83313-16	
Date Sampled:			2/26/2019	2/27/2019	2/26/2019	2/28/2019	2/28/2019	2/28/2019	3/1/2019	3/1/2019	3/1/2019	3/5/2019	3/5/2019	3/5/2019	3/5/2019	2/21/2019	2/22/2019	2/21/2019	2/21/2019	2/22/2019	2/21/2019	2/22/2019	2/21/2019	2/22/2019	2/21/2019	2/22/2019
Matrix:			Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
GC/LC Semi-volatiles (NJDEP EPH)																										
C10-C12 Aromatics	NC	mg/kg	ND (6.2)	ND (8.4)	ND (6.7)	ND (5.3)	ND (6.8)	ND (5.6)	ND (5.3)	ND (5.0)	ND (3.9)	ND (4.9)	ND (3.5)	ND (5.5)	ND (6.3)	ND (5.8)	ND (5.1)	ND (5.3)	ND (6.3)	ND (5.1)	ND (4.9)	ND (4.6)	ND (4.9)	ND (4.2)	ND (4.9)	
C12-C16 Aromatics	NC	mg/kg	ND (6.2)	ND (8.4)	ND (6.7)	ND (5.3)	ND (6.8)	ND (5.6)	ND (5.3)	ND (5.0)	ND (3.9)	ND (4.9)	ND (3.5)	ND (5.5)	ND (6.3)	ND (5.8)	ND (5.1)	ND (5.3)	ND (6.3)	ND (5.1)	ND (4.9)	ND (4.6)	ND (4.9)	ND (4.2)	ND (4.9)	
C16-C21 Aromatics	NC	mg/kg	44.2	ND (8.4)	ND (6.7)	34.6	ND (6.8)	ND (5.6)	ND (5.3)	ND (5.0)	ND (3.9)	ND (4.9)	ND (3.5)	51	ND (6.3)	43.8	ND (5.1)	ND (5.3)	ND (6.3)	ND (5.1)	ND (4.9)	ND (4.6)	ND (4.9)	ND (4.2)	ND (4.9)	
C21-C36 Aromatics	NC	mg/kg	56.6	ND (8.4)	ND (6.7)	98	ND (6.8)	ND (5.6)	ND (5.3)	ND (5.0)	ND (3.9)	ND (4.9)	ND (3.5)	65.1	ND (6.3)	85.8	ND (5.1)	ND (5.3)	ND (6.3)	ND (5.1)	ND (4.9)	ND (4.6)	ND (4.9)	ND (4.2)	ND (4.9)	
Total Aromatics	NC	mg/kg	101	ND (8.4)	ND (6.7)	133	ND (6.8)	ND (5.6)	ND (5.3)	ND (5.0)	ND (3.9)	ND (4.9)	ND (3.5)	116	ND (6.3)	130	ND (5.1)	ND (5.3)	ND (6.3)	ND (5.1)	ND (4.9)	ND (4.6)	ND (4.9)	ND (4.2)	ND (4.9)	
C9-C12 Aliphatics	NC	mg/kg	13.7	ND (8.4)	ND (6.7)	ND (5.3)	ND (6.8)	ND (5.6)	ND (5.3)	ND (5.0)	ND (3.9)	ND (4.9)	ND (3.5)	22	ND (6.3)	ND (5.8)	ND (5.1)	ND (5.3)	ND (6.3)	ND (5.1)	ND (4.9)	ND (4.6)	ND (4.9)	ND (4.2)	ND (4.9)	
C12-C16 Aliphatics	NC	mg/kg	55.5	ND (8.4)	ND (6.7)	32.4	ND (6.8)	14.7	ND (5.3)	ND (5.0)	ND (3.9)	ND (4.9)	ND (3.5)	81.3	ND (6.3)	38.8	ND (5.1)	ND (5.3)	ND (6.3)	ND (5.1)	16.7	15.2	ND (4.9)	15.6	ND (4.9)	
C16-C21 Aliphatics	NC	mg/kg	76.9	37.7	ND (6.7)	64.4	21.9	28.6	ND (5.3)	ND (5.0)	9.62	ND (4.9)	ND (3.5)	106	ND (6.3)	74.3	ND (5.1)	ND (6.3)	28.2	ND (5.1)	25.6	24.3	ND (4.9)	28.5	26.3	
C21-C40 Aliphatics	NC	mg/kg	150	78.7	ND (6.7)	135	45.5	64.2	ND (5.3)	35.7	17.7	ND (4.9)	ND (3.5)	152	ND (6.3)	118	ND (5.1)	ND (5.3)	65.3	ND (5.1)	25.2	33.6	ND (4.9)	49.5	81.4	
Total Aliphatics	NC	mg/kg	296	116	ND (6.7)	232	67.4	108	ND (5.3)	35.7	27.4	ND (4.9)	ND (3.5)	361	ND (6.3)	231	ND (5.1)	ND (5.3)	93.4	ND (5.1)	67.5	73.2	ND (4.9)	93.6	108	
Total EPH	NC	mg/kg	396	116	ND (13)	365	67.4	108	ND (11)	35.7	27.4	ND (9.7)	ND (7.0)	477	ND (13)	361	ND (10)	ND (11)	93.4	ND (10)	67.5	73.2	ND (9.8)	93.6	108	
Metals Analysis																										
Aluminum	25500	mg/kg	26900	24300	30200	19200	20200	19900	27200	10700	28500	30700	19900	19500	30700	21300	26800	21300	21700	24000	21500	9600	30700	15200	17600	
Antimony	NC	mg/kg	<4.8	<6.7	<5.3	<4.2	<5.3	<4.1	<4.1	<3.6	<3.1	<3.8	<2.7	<4.0	<4.8	7.1	4.1	<4.2	<4.6	<3.7	<4.0	<3.4	<4.0	<3.6	<3.9	
Arsenic	8.2	mg/kg	120	35.8	64.2	49.9 <sup>f</sup>	44.8	64.3 <sup>f</sup>	74.2 <sup>f</sup>	20.3	54.2 <sup>f</sup>	26.6	71.7	34	112	47.9 <sup>f</sup>	80.8	63.1	52.0 <sup>f</sup>	22.5	63.1 <sup>f</sup>	21.5	68.5	30.9	43	
Barium	NC	mg/kg	340	180	90.9	103	152	236	64.7	67.1	319	64.5	279	121	135	244	368	66.9	179	94.3	264	51.9	121	123	121	
Beryllium	NC	mg/kg	2	1.6	1.8	1.4	1.5	1.5	1.3	0.82	2.4	1.5	2	1.4	1.9	2.2	2.1	0.75	1.7	0.91	1.3	0.68	1.6	1	1.2	
Cadmium	1.2	mg/kg	4.9	2.2	<1.3	<1.0	<1.3	<1.0	<1.0	1.9	0.94	<0.95	2	2.3	1.7	1.1	<2.8 <sup>g</sup>	<1.0	5.1	<0.93	<0.99	0.99	<0.99	2.6	3.7	
Calcium	NC	mg/kg	4480	4660	2490	2160	3780	4440	1870	4570	10200	2020	3360	3410	2490	37600	4400	1520	3500	1520	2520	1360	2130	2260	3330	
Chromium	81	mg/kg	194	113	71.6	69.5	87.8	102	49.3	44.1	243	49.5	91.1 <sup>f</sup>	73.3 <sup>f</sup>	97.7	96.0 <sup>f</sup>	226	57.9	116 <sup>f</sup>	47.3	60.9	40.1	87.3	58.2	72	
Cobalt	50	mg/kg	15.7	<17	<13	12.3	<13	11.1	13.7	<9.0	13.2	15.2	12.3	11.2	16	12.3	16.3	<10	13.6	10.9	<9.9	<8.5	13.3	<8.9	11.3	
Copper	34	mg/kg	487	340	116	244 <sup>f</sup>	275	286 <sup>f</sup>	37.6 <sup>f</sup>	143	85.9 <sup>f</sup>	33.9	216 <sup>f</sup>	232 <sup>f</sup>	390	199 <sup>f</sup>	197 <sup>g</sup>	162	401 <sup>f</sup>	61.2	101 <sup>f</sup>	139	194	206	292	
Iron	20000	mg/kg	59000	52500	38500	49000	50900	55600	55300	31500	56800	37800	38800	45900	38600	55400	75200	25400	58600	29300	46000	20000	35800	29600	37200	
Lead	47	mg/kg	279	211	351	128 <sup>f</sup>	199	177 <sup>f</sup>	97.9 <sup>f</sup>	112	61.8 <sup>f</sup>	68.1	135 <sup>f</sup>	201	306	324 <sup>f</sup>	369 <sup>g</sup>	195	264 <sup>f</sup>	101	98.7 <sup>f</sup>	111	249	133	185	
Magnesium	NC	mg/kg	8840	10700	9710	6420	7430	6010	8230	4420	3900	9440	4530	4870	8430	4170	4550	6380	6540	6270	3210	2320	8650	3460	5670	
Manganese	630	mg/kg	419	354	396	313 <sup>f</sup>	251	259 <sup>f</sup>	492 <sup>f</sup>	201	211 <sup>f</sup>	437	275 <sup>f</sup>	192 <sup>f</sup>	313	263 <sup>f</sup>	173 <sup>g</sup>	243	233 <sup>f</sup>	243	151 <sup>f</sup>	79.3	350	173	241	
Mercury	0.15	mg/kg	4.9	2.2	2.3	5.7	1.9	2	0.78	0.59	0.98	0.13	0.21	4.4	0.44	1.1	2.8	0.52	1.9	0.52	1.1	0.85	4	2	1.2	
Nickel	21	mg/kg	56.3	51.7	40.1	42.9	48.1	45.1	41.1	30.3	61.4	41.6	36.4	45.6	80.8	62	189	27.2	68	28.6	33.5	21.8	48.3	37.3	47.2	
Potassium	NC	mg/kg	5040	5060	5420	3640	3640	3200	4640	<1800	2980	5570	2980	2680	5540	2700	3340	4600	3410	4560	2030	<1700	5420	<1800	2580	
Selenium	NC	mg/kg	<9.6	<6.7	<5.3	<8.4 <sup>f</sup>	<5.3	<8.3 <sup>f</sup>	<8.2 <sup>f</sup>	<3.6	<9.3 <sup>f</sup>	<3.8	<5.4 <sup>f</sup>	<7.9 <sup>f</sup>	6	<8.5 <sup>f</sup>	<11 <sup>g</sup>	7.3	<9.2 <sup>f</sup>	<3.7	<7.9 <sup>f</sup>	<3.4	<4.0	<3.6	<3.9	
Silver	1	mg/kg	4.4	2.7	<1.3	<2.1 <sup>f</sup>	2.3	<2.1 <sup>f</sup>	<2.0 <sup>f</sup>	<0.90	<2.3 <sup>f</sup>	<0.95	1.7 <sup>f</sup>	<2.0 <sup>f</sup>	2.1	<2.1 <sup>f</sup>	<2.8 <sup>g</sup>	1.6	<2.3 <sup>f</sup>	<0.93	<2.0 <sup>f</sup>	1.5	1.1	1.9	2.7	
Sodium	NC	mg/kg	8820	16700	11600	6670	10900	8220	7770	4360	3710	8480	5840	7030	7620	7060	4300	5060	9430	4980	3430	3370	7000	2640	3950	
Thallium	NC	mg/kg	<4.8	<3.4	<2.6	<4.2 <sup>f</sup>	<2.7	<4.1 <sup>f</sup>	<4.1 <sup>f</sup>	<1.8	<4.6 <sup>f</sup>	<1.9	<2.7 <sup>f</sup>	<4.0 <sup>f</sup>	<2.4	<4.2 <sup>f</sup>	<5.7 <sup>g</sup>	<2.1	<4.6 <sup>f</sup>	<1.9	<4.0 <sup>f</sup>	<1.7	<2.0	<1.8	<3.9 <sup>f</sup>	
Vanadium	NC	mg/kg	100																							



Table 7.5  
Detention Basin Deep Sediment Screening  
Former Hess Port Reading Terminal Site  
Port Reading New Jersey

Client Sample ID:	NJ Non-Residential Direct Contact Soil	NJ Residential Direct Contact Soil		SB-1M	SB-1B	SB-2M	SB-2B	SB-3M	SB-3B	SB-4M	SB-4B	SB-5M	SB-5B	SB-6M	SB-6B	SB-7M	SB-7B	SB-8M	SB-8B	SB-9M	SB-9B	SB-10M	SB-10B	SB-11M	SB-11B	SB-12M	SB-12B	
Sample Depth (ft.)				2.5-3.0	5.5-6.0	2.5-3.0	5.0-5.4	3.5-4.0	7.0-7.5	1.5-2.0	3.5-4.0	7.0-7.5	3.5-4.0	6.5-7.0	2.5-3.0	5.5-6.0	3.5-4.0	6.0-6.5	3.5-4.0	6.5-7.0	3.5-4.0	6.5-7.0	3.5-4.0	6.5-7.0	3.5-4.0	6.5-7.0		
Date Sampled:				11/9/2018	11/9/2018	11/9/2018	11/9/2018	11/9/2018	11/9/2018	11/9/2018	11/9/2018	11/9/2018	11/9/2018	11/9/2018	11/9/2018	11/9/2018	11/9/2018	11/9/2018	11/9/2018	11/12/2018	11/12/2018	11/12/2018	11/12/2018	11/12/2018	11/12/2018	11/12/2018	11/12/2018	
Matrix:				Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
MS Volatiles (SW846 8260C)																												
Acetone	NA	70000	mg/kg	0.0461	0.0289	ND (0.47)	0.0854	0.035	0.0302	ND (1.2)	0.54	0.0459 J	0.0299 J	0.0257	0.0377	0.081	0.0522	0.0606	0.0223 J	0.0385 J	0.0299	ND (0.43)	0.0586	ND (1.1)	0.0334	0.0482 J	0.0589 J	
Benzene	5	2	mg/kg	0.0042	ND (0.0087)	ND (0.035)	0.0017	ND (0.0010)	ND (0.00094)	11.8	0.279	ND (0.0028)	ND (0.0011)	ND (0.00078)	0.0872	0.0436	0.0015 J	ND (0.0011)	0.0269	ND (0.0010)	ND (0.032)	0.0026	12.6	0.0093	ND (0.0034)	ND (0.0030)		
Bromochloromethane	-	-	mg/kg	ND (0.0011)	ND (0.0010)	ND (0.040)	ND (0.0010)	ND (0.0012)	ND (0.0011)	ND (0.10)	ND (0.0011)	ND (0.0032)	ND (0.0013)	ND (0.00089)	ND (0.0021)	ND (0.0015)	ND (0.0017)	ND (0.0012)	ND (0.0019)	ND (0.0012)	ND (0.037)	ND (0.0082)	ND (0.096)	ND (0.0010)	ND (0.0039)	ND (0.0034)		
Bromodichloromethane	3	1	mg/kg	ND (0.0011)	ND (0.0010)	ND (0.041)	ND (0.0011)	ND (0.0012)	ND (0.0011)	ND (0.10)	ND (0.0012)	ND (0.0033)	ND (0.0013)	ND (0.00092)	ND (0.0010)	ND (0.0021)	ND (0.0015)	ND (0.0017)	ND (0.0012)	ND (0.0020)	ND (0.0012)	ND (0.038)	ND (0.0085)	ND (0.098)	ND (0.0011)	ND (0.0040)	ND (0.0036)	
Bromodorm	280	81	mg/kg	ND (0.0010)	ND (0.00093)	ND (0.038)	ND (0.00096)	ND (0.0011)	ND (0.0010)	ND (0.093)	ND (0.0011)	ND (0.0030)	ND (0.0012)	ND (0.00084)	ND (0.00094)	ND (0.0020)	ND (0.0014)	ND (0.0016)	ND (0.0011)	ND (0.0018)	ND (0.0011)	ND (0.034)	ND (0.00077)	ND (0.090)	ND (0.00098)	ND (0.0036)	ND (0.0032)	
Bromomethane	59	25	mg/kg	ND (0.0026)	ND (0.0023)	ND (0.093)	ND (0.0024)	ND (0.0027)	ND (0.0025)	ND (0.23)	ND (0.0026)	ND (0.0074)	ND (0.0030)	ND (0.0021)	ND (0.0023)	ND (0.0048)	ND (0.0034)	ND (0.0039)	ND (0.0028)	ND (0.0045) *	ND (0.0027) *	ND (0.085)	ND (0.0019) *	ND (0.22)	ND (0.0024) *	ND (0.0089)	ND (0.0080) *	
2-Butanone (MEK)	44000	3100	mg/kg	ND (0.0096)	ND (0.0087)	ND (0.35)	0.0171 J	ND (0.010)	ND (0.0093)	ND (0.87)	0.0246 J	ND (0.028)	ND (0.011)	ND (0.0078)	ND (0.0087)	ND (0.018)	ND (0.013)	ND (0.015)	ND (0.010)	ND (0.017)	0.0102 J	ND (0.32)	0.0130 J	ND (0.83)	ND (0.0091)	ND (0.034)	ND (0.030)	
Carbon disulfide	110000	7800	mg/kg	ND (0.0024)	ND (0.0022)	ND (0.087)	0.0023 J	0.0035 J	0.0056	ND (0.22)	0.0040 J	0.0515	0.0142	0.0051	0.0086	0.0125	0.0112	0.0211	0.0093	ND (0.0042)	0.0139	ND (0.079)	ND (0.0018)	ND (0.21)	0.0045 J	0.026	0.0308	
Carbon tetrachloride	4	2	mg/kg	ND (0.0014)	ND (0.0013)	ND (0.051)	ND (0.0013)	ND (0.0015)	ND (0.0014)	ND (0.13)	ND (0.0014)	ND (0.0041)	ND (0.0017)	ND (0.0011)	ND (0.0013)	ND (0.0027)	ND (0.0019)	ND (0.0021)	ND (0.0015)	ND (0.0025)	ND (0.0015)	ND (0.047)	ND (0.0011)	ND (0.12)	ND (0.0013)	ND (0.0049)	ND (0.0044)	
Chlorobenzene	7400	510	mg/kg	0.0142	ND (0.0082)	ND (0.033)	0.0127	ND (0.00095)	ND (0.00088)	0.0885 J	0.0102	ND (0.0026)	ND (0.0011)	ND (0.00074)	ND (0.00082)	ND (0.0012)	ND (0.0014)	ND (0.00099)	ND (0.0016)	ND (0.00095)	ND (0.030)	0.00098 J	0.823	ND (0.00086)	ND (0.0032)	ND (0.0028)		
Chloroethane	1100	220	mg/kg	ND (0.0018)	ND (0.0016)	ND (0.064)	ND (0.0016)	ND (0.0019)	ND (0.0017)	ND (0.16)	ND (0.0018)	ND (0.0021)	ND (0.0014)	ND (0.0016)	ND (0.0033)	ND (0.0023)	ND (0.0027)	ND (0.0019)	ND (0.0031) *	ND (0.0018) *	ND (0.058)	ND (0.0013) *	ND (0.15)	ND (0.0017) *	ND (0.0062)	ND (0.0055) *		
Chloroform	2	0.6	mg/kg	ND (0.00095)	ND (0.00086)	ND (0.035)	ND (0.00089)	ND (0.0010)	ND (0.00093)	ND (0.086)	ND (0.00086)	ND (0.0027)	ND (0.0011)	ND (0.00077)	ND (0.00086)	ND (0.0018)	ND (0.0013)	ND (0.0014)	ND (0.0010)	ND (0.0017)	ND (0.0010)	ND (0.032)	ND (0.00071)	ND (0.083)	ND (0.00090)	ND (0.0033)	ND (0.0030)	
Chloromethane	12	4	mg/kg	ND (0.0050)	ND (0.0045)	ND (0.18)	ND (0.0047)	ND (0.0053)	ND (0.0049)	ND (0.45)	ND (0.0051)	ND (0.014)	ND (0.0059)	ND (0.0041)	ND (0.0045)	ND (0.0066)	ND (0.0076)	ND (0.0055)	ND (0.0088)	ND (0.0053)	ND (0.17)	ND (0.0037)	ND (0.44)	ND (0.0048)	ND (0.018)	ND (0.016)		
Cyclohexane			mg/kg	0.0022 J	ND (0.00094)	0.557	0.0076	0.0013 J	ND (0.0010)	5.25	0.0326	ND (0.0030)	ND (0.0012)	ND (0.00084)	0.0042 J	0.0576	0.0164	ND (0.0016)	ND (0.0011)	0.0107	ND (0.0011)	0.166 J	0.005	22.8	0.0243	ND (0.0036)	ND (0.0033)	
1,2-Dibromo-3-chloropropane	0.2	0.08	mg/kg	ND (0.0021)	ND (0.0019)	ND (0.078)	ND (0.0020)	ND (0.0023)	ND (0.0021)	ND (0.19)	ND (0.0022)	ND (0.0062)	ND (0.0025)	ND (0.0017)	ND (0.0019)	ND (0.0040)	ND (0.0028)	ND (0.0032)	ND (0.0023)	ND (0.0038)	ND (0.0022)	ND (0.071)	ND (0.0016)	ND (0.19)	ND (0.0020)	ND (0.0075)	ND (0.0067)	
Dibromochloromethane	8	3	mg/kg	ND (0.00087)	ND (0.00078)	ND (0.032)	ND (0.00081)	ND (0.00091)	ND (0.00084)	ND (0.078)	ND (0.00089)	ND (0.0025)	ND (0.0010)	ND (0.00070)	ND (0.00078)	ND (0.0016)	ND (0.0011)	ND (0.0013)	ND (0.00095)	ND (0.0015)	ND (0.00091)	ND (0.029)	ND (0.00065)	ND (0.075)	ND (0.00082)	ND (0.0030)	ND (0.0027)	
1,2-Dibromoethane	0.04	0.008	mg/kg	ND (0.00083)	ND (0.00075)	ND (0.030)	ND (0.00077)	ND (0.00088)	ND (0.00081)	ND (0.075)	ND (0.00085)	ND (0.0024)	ND (0.00098)	ND (0.00067)	ND (0.00075)	ND (0.0016)	ND (0.0011)	ND (0.0013)	ND (0.00091)	ND (0.0015)	ND (0.00087)	ND (0.028)	ND (0.00062)	ND (0.072)	ND (0.00079)	ND (0.0029)	ND (0.0026)	
1,2-Dichlorobenzene	59000	5300	mg/kg	0.0017 J	ND (0.00071)	ND (0.028)	0.0029	ND (0.00082)	ND (0.00076)	0.305	0.0083	ND (0.0023)	ND (0.00092)	ND (0.00063)	ND (0.00071)	ND (0.0015)	ND (0.0010)	ND (0.0012)	ND (0.00086)	ND (0.0014)	ND (0.00082)	0.0315 J	ND (0.00058)	2.62	0.00086 J	ND (0.0027)	ND (0.0024)	
1,3-Dichlorobenzene	59000	5300	mg/kg	0.0078	ND (0.00083)	ND (0.034)	0.0063	ND (0.00097)	ND (0.00090)	ND (0.083)	0.0063	ND (0.0027)	ND (0.0011)	ND (0.00075)	ND (0.00083)	ND (0.0017)	ND (0.0012)	ND (0.0014)	ND (0.0010)	ND (0.0016)	ND (0.00086)	ND (0.031)	ND (0.00069)	0.309	ND (0.00087)	ND (0.0032)	ND (0.0029)	
1,4-Dichlorobenzene	13	5	mg/kg	0.0186	ND (0.00080)	ND (0.032)	0.0237	ND (0.00093)	ND (0.00086)	ND (0.080)	0.0228	ND (0.0025)	ND (0.0010)	ND (0.00071)	ND (0.00080)	ND (0.0017)	ND (0.0012)	ND (0.0013)	ND (0.00097)	ND (0.0016)	ND (0.00092)	0.0589 J	ND (0.00066)	0.641	ND (0.00084)	ND (0.0031)	ND (0.0028)	
Dichlorodifluoroethane	230000	490	mg/kg	ND (0.0016)	ND (0.0015)	ND (0.059) *	ND (0.0015)	ND (0.0017)	ND (0.0016)	ND (0.15) *	ND (0.0017)	ND (0.0047)	ND (0.0019)	ND (0.0013)	ND (0.0015)	ND (0.0031)	ND (0.0021)	ND (0.0025)	ND (0.0018)	ND (0.0029)	ND (0.0017)	ND (0.054)	ND (0.0012)	ND (0.14)	ND (0.0015)	ND (0.0057)	ND (0.0051)	
1,1-Dichloroethane	24	8	mg/kg	ND (0.00099)	ND (0.00089)	ND (0.036)	ND (0.00092)	ND (0.0010)	ND (0.00096)	ND (0.0010)	ND (0.0028)	ND (0.0012)	ND (0.00080)	ND (0.00089)	ND (0.0019)	ND (0.0013)	ND (0.0015)	ND (0.0011)	ND (0.0017)	ND (0.0010)	ND (0.033)	ND (0.00074)	ND (0.086)	ND (0.00094)	ND (0.0035)	ND (0.0031)		
1,2-Dichloroethane	3	0.9	mg/kg	ND (0.0012)	ND (0.0011)	ND (0.044)	ND (0.0011)	ND (0.0013)	ND (0.0012)	ND (0.11)	ND (0.0012)	ND (0.0035)	ND (0.0014)	ND (0.00098)	ND (0.0011)	ND (0.0023)	ND (0.0016)	ND (0.0018)	ND (0.0013)	ND (0.0021)	ND (0.0013)	ND (0.040)	ND (0.00090)	ND (0.10)	ND (0.0011)	ND (0.0042)	ND (0.0038)	
1,1-Dichloroethene	150	11	mg/kg	ND (0.0017)	ND (0.0015)	ND (0.061)	ND (0.0016)	ND (0.0018)	ND (0.0016)	ND (0.15)	ND (0.0017)	ND (0.0048)	ND (															

Table 7.5  
Detention Basin Deep Sediment Screening  
Former Hess Port Reading Terminal Site  
Port Reading New Jersey

Client Sample ID:	NJ Non-Residential Direct Contact Soil	NJ Residential Direct Contact Soil		SB-1M	SB-1B	SB-2M	SB-2B	SB-3M	SB-3B	SB-4M	SB-4B	SB-5M	SB-5B	SB-6M	SB-6B	SB-7M	SB-7B	SB-8M	SB-8B	SB-9M	SB-9B	SB-10M	SB-10B	SB-11M	SB-11B	SB-12M	SB-12B
Sample Depth (ft.)				2.5-3.0	5.5-6.0	2.5-3.0	5.0-5.4	3.5-4.0	7.0-7.5	1.5-2.0	3.5-4.0	3.5-4.0	7.0-7.5	3.5-4.0	6.5-7.0	2.5-3.0	5.5-6.0	3.5-4.0	6.0-6.5	3.5-4.0	6.5-7.0	3.5-4.0	6.5-7.0	3.5-4.0	6.5-7.0	3.5-4.0	6.5-7.0
Date Sampled:				11/9/2018	11/9/2018	11/9/2018	11/9/2018	11/9/2018	11/9/2018	11/9/2018	11/9/2018	11/9/2018	11/9/2018	11/9/2018	11/9/2018	11/9/2018	11/9/2018	11/9/2018	11/9/2018	11/12/2018	11/12/2018	11/12/2018	11/12/2018	11/12/2018	11/12/2018	11/12/2018	11/12/2018
Matrix:				Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
MS Semi-volatiles (SW846 8270D)																											
2-Chlorophenol	2200	310	mg/kg	ND (0.038)	ND (0.032)	ND (0.12)	ND (0.031)	ND (0.034)	ND (0.031)	ND (0.34)	ND (0.029)	ND (0.078)	ND (0.033)	ND (0.029)	ND (0.031)	ND (0.048)	ND (0.033)	ND (0.040)	ND (0.035)	ND (0.050)	ND (0.034)	ND (0.021)	ND (0.024)	ND (0.19)	ND (0.033)	ND (0.099)	ND (0.084)
4-Chloro-3-methyl phenol	-	-	mg/kg	ND (0.047)	ND (0.039)	ND (0.15)	ND (0.039)	ND (0.042)	ND (0.038)	ND (0.43)	ND (0.036)	ND (0.097)	ND (0.041)	ND (0.036)	ND (0.039)	ND (0.060)	ND (0.041)	ND (0.049)	ND (0.043)	ND (0.063)	ND (0.042)	ND (0.026)	ND (0.029)	ND (0.23)	ND (0.041)	ND (0.12)	ND (0.10)
2,4-Dichlorophenol	2100	180	mg/kg	ND (0.065)	ND (0.054)	ND (0.20)	ND (0.054)	ND (0.059)	ND (0.053)	ND (0.60)	ND (0.050)	ND (0.14)	ND (0.057)	ND (0.051)	ND (0.054)	ND (0.084)	ND (0.057)	ND (0.069)	ND (0.060)	ND (0.087)	ND (0.058)	ND (0.037)	ND (0.041)	ND (0.32)	ND (0.057)	ND (0.17)	ND (0.14)
2,4-Dimethylphenol	14000	1200	mg/kg	ND (0.14)	ND (0.11)	ND (0.43)	ND (0.11)	ND (0.12)	ND (0.11)	ND (1.2)	ND (0.10)	ND (0.28)	ND (0.12)	ND (0.11)	ND (0.11)	ND (0.17)	ND (0.12)	ND (0.14)	ND (0.12)	ND (0.18)	ND (0.12)	ND (0.077)	ND (0.085)	ND (0.67)	ND (0.12)	ND (0.36)	ND (0.30)
2,4-Dinitrophenol	1400	120	mg/kg	ND (0.29)	ND (0.24)	ND (0.90)	ND (0.24)	ND (0.26)	ND (0.23)	ND (2.6)	ND (0.22)	ND (0.60)	ND (0.25)	ND (0.22)	ND (0.24)	ND (0.37)	ND (0.25)	ND (0.30)	ND (0.26)	ND (0.38) *	ND (0.26) *	ND (0.16) *	ND (0.18) *	ND (1.4) *	ND (0.25) *	ND (0.75) *	ND (0.64) *
4,6-Dinitro-o-cresol	68	6	mg/kg	ND (0.082)	ND (0.068)	ND (0.26)	ND (0.068)	ND (0.074)	ND (0.066)	ND (0.75)	ND (0.062)	ND (0.17)	ND (0.071)	ND (0.064)	ND (0.068)	ND (0.11)	ND (0.071)	ND (0.086)	ND (0.075)	ND (0.11)	ND (0.073)	ND (0.046)	ND (0.051)	ND (0.40)	ND (0.072)	ND (0.21)	ND (0.18)
2-Methylphenol	3400	310	mg/kg	ND (0.049)	ND (0.041)	ND (0.15)	ND (0.041)	ND (0.044)	ND (0.040)	ND (0.45)	ND (0.037)	ND (0.10)	ND (0.042)	ND (0.038)	ND (0.041)	ND (0.063)	ND (0.043)	ND (0.051)	ND (0.045)	ND (0.065)	ND (0.043)	ND (0.028)	ND (0.030)	ND (0.24)	ND (0.043)	ND (0.13)	ND (0.11)
3,6,4-Methylphenol	-	-	mg/kg	ND (0.063)	ND (0.052)	ND (0.20)	0.0879 J	ND (0.057)	ND (0.051)	ND (0.57)	ND (0.048)	ND (0.13)	ND (0.055)	ND (0.049)	ND (0.052)	ND (0.081)	ND (0.055)	ND (0.058)	ND (0.058)	ND (0.084)	ND (0.056)	ND (0.035)	ND (0.039)	ND (0.31)	ND (0.055)	ND (0.16)	ND (0.14)
2-Nitrophenol	-	-	mg/kg	ND (0.051)	ND (0.042)	ND (0.16)	ND (0.042)	ND (0.046)	ND (0.041)	ND (0.46)	ND (0.039)	ND (0.11)	ND (0.044)	ND (0.039)	ND (0.042)	ND (0.065)	ND (0.044)	ND (0.053)	ND (0.046)	ND (0.067)	ND (0.045)	ND (0.028)	ND (0.031)	ND (0.25)	ND (0.044)	ND (0.13)	ND (0.11)
4-Nitrophenol	-	-	mg/kg	ND (0.20)	ND (0.17)	ND (0.64)	ND (0.17)	ND (0.19)	ND (0.17)	ND (1.9)	ND (0.16)	ND (0.42)	ND (0.18)	ND (0.16)	ND (0.17)	ND (0.26)	ND (0.18)	ND (0.21)	ND (0.19)	ND (0.27)	ND (0.18)	ND (0.11) <sup>f</sup>	ND (0.13) <sup>f</sup>	ND (1.0)	ND (0.18)	ND (0.54)	ND (0.45)
Pentachlorophenol	3	0.9	mg/kg	ND (0.072)	ND (0.060)	ND (0.23)	ND (0.060)	ND (0.065)	ND (0.058)	ND (0.66)	ND (0.055)	ND (0.15)	ND (0.062)	ND (0.056)	ND (0.060)	ND (0.092)	ND (0.063)	ND (0.075)	ND (0.066)	ND (0.096) <sup>f</sup>	ND (0.064) <sup>f</sup>	ND (0.040)	ND (0.045)	ND (0.35)	ND (0.063) <sup>f</sup>	ND (0.19) <sup>f</sup>	ND (0.16) <sup>f</sup>
Phenol	210000	18000	mg/kg	ND (0.040)	ND (0.033)	ND (0.13)	ND (0.033)	ND (0.036)	ND (0.032)	ND (0.36)	ND (0.030)	ND (0.083)	ND (0.035)	ND (0.031)	ND (0.033)	ND (0.051)	ND (0.035)	ND (0.042)	ND (0.037)	ND (0.053) <sup>f</sup>	ND (0.035) <sup>f</sup>	ND (0.022)	ND (0.025)	ND (0.20) <sup>f</sup>	ND (0.035) <sup>f</sup>	ND (0.10) <sup>f</sup>	ND (0.088) <sup>f</sup>
2,3,4,6-Tetrachlorophenol	-	-	mg/kg	ND (0.051)	ND (0.042)	ND (0.16)	ND (0.042)	ND (0.046) *	ND (0.041) *	ND (0.46) *	ND (0.039) *	ND (0.11) *	ND (0.044) *	ND (0.039) *	ND (0.042)	ND (0.065)	ND (0.044)	ND (0.053)	ND (0.046)	ND (0.068)	ND (0.045)	ND (0.029)	ND (0.032)	ND (0.25)	ND (0.044)	ND (0.13)	ND (0.11)
2,4,5-Trichlorophenol	68000	6100	mg/kg	ND (0.057)	ND (0.048)	ND (0.18)	ND (0.047)	ND (0.052)	ND (0.046)	ND (0.52)	ND (0.044)	ND (0.12)	ND (0.050)	ND (0.045)	ND (0.048)	ND (0.074)	ND (0.050)	ND (0.060)	ND (0.053)	ND (0.076)	ND (0.051)	ND (0.032)	ND (0.036)	ND (0.28)	ND (0.050)	ND (0.15)	ND (0.13)
2,4,6-Trichlorophenol	74	19	mg/kg	ND (0.046)	ND (0.038)	ND (0.14)	ND (0.038)	ND (0.041)	ND (0.037)	ND (0.42)	ND (0.035)	ND (0.095)	ND (0.040)	ND (0.035)	ND (0.038)	ND (0.058)	ND (0.040)	ND (0.048)	ND (0.042)	ND (0.061)	ND (0.040)	ND (0.026)	ND (0.028)	ND (0.22)	ND (0.040)	ND (0.12)	ND (0.10)
Acenaphthene	37000	3400	mg/kg	0.114	ND (0.022)	2.12	0.0355 J	ND (0.024)	ND (0.021)	3.35	0.25	ND (0.055)	ND (0.023)	ND (0.021)	ND (0.022)	ND (0.034)	ND (0.023)	ND (0.028)	ND (0.024)	ND (0.035)	ND (0.023)	0.144	0.0195 J	5.4	ND (0.023)	ND (0.069)	ND (0.058)
Acenaphthylene	300000	NA	mg/kg	0.0625 J	ND (0.032)	ND (0.12)	0.102	ND (0.035)	ND (0.031)	ND (0.35)	ND (0.030)	ND (0.081)	ND (0.034)	ND (0.030)	ND (0.032)	ND (0.050)	ND (0.034)	ND (0.041)	ND (0.036)	ND (0.052)	ND (0.034)	ND (0.022)	ND (0.024)	ND (0.19)	ND (0.034)	ND (0.10)	ND (0.086)
Acetophenone	5	2	mg/kg	ND (0.016)	ND (0.014)	ND (0.052)	ND (0.014)	ND (0.015)	ND (0.013)	ND (0.15)	ND (0.013)	ND (0.034)	ND (0.014)	ND (0.013)	ND (0.014)	ND (0.021)	ND (0.014)	ND (0.017)	ND (0.015)	ND (0.022)	ND (0.015)	ND (0.0093)	ND (0.010)	ND (0.081)	ND (0.014)	ND (0.043)	ND (0.036)
Anthracene	30000	17000	mg/kg	0.152	ND (0.039)	ND (0.15)	0.165	ND (0.042)	ND (0.038)	ND (0.43)	0.26	ND (0.097)	ND (0.041)	ND (0.036)	ND (0.039)	ND (0.060)	ND (0.041)	ND (0.049)	ND (0.043)	ND (0.063)	ND (0.042)	0.101	ND (0.029)	2.15	ND (0.041)	ND (0.12)	ND (0.10)
Atrazine	2400	210	mg/kg	ND (0.033) *	ND (0.027) *	ND (0.10) *	ND (0.027) *	ND (0.030)	ND (0.027)	ND (0.30)	ND (0.025)	ND (0.068)	ND (0.028)	ND (0.025)	ND (0.027)	ND (0.042)	ND (0.029)	ND (0.034)	ND (0.030)	ND (0.044)	ND (0.029)	ND (0.018) *	ND (0.020) *	ND (0.16) *	ND (0.029)	ND (0.086)	ND (0.072)
Benzo(a)anthracene	17	5	mg/kg	0.182	0.0250 J	0.683	0.299	ND (0.020)	ND (0.018)	0.552 J	0.111	ND (0.045)	ND (0.019)	0.0532 J	ND (0.018)	ND (0.028)	ND (0.019)	ND (0.023)	ND (0.020)	ND (0.029)	ND (0.019)	0.0579	ND (0.013)	0.767	ND (0.019)	ND (0.057)	ND (0.048)
Benzo(a)pyrene	2	0.5	mg/kg	0.138	ND (0.029)	0.709	0.395	ND (0.032)	ND (0.028)	0.418 J	0.0561 J	ND (0.072)	ND (0.030)	0.0435 J	ND (0.029)	ND (0.045)	ND (0.030)	ND (0.037)	ND (0.032)	ND (0.046)	ND (0.031)	0.0343 J	ND (0.022)	0.47	ND (0.031)	ND (0.091)	ND (0.077)
Benzo(b)fluoranthene	17	5	mg/kg	0.216	ND (0.028)	0.468	0.475	ND (0.031)	ND (0.027)	0.470 J	0.0821	ND (0.0															

Table 7.5  
Detention Basin Deep Sediment Screening  
Former Hess Port Reading Terminal Site  
Port Reading New Jersey

Client Sample ID:	NJ Non-Residential Direct Contact Soil	NJ Residential Direct Contact Soil		SB-1M	SB-1B	SB-2M	SB-2B	SB-3M	SB-3B	SB-4M	SB-4B	SB-5M	SB-5B	SB-6M	SB-6B	SB-7M	SB-7B	SB-8M	SB-8B	SB-9M	SB-9B	SB-10M	SB-10B	SB-11M	SB-11B	SB-12M	SB-12B	
Sample Depth (ft.)				2.5-3.0	5.5-6.0	2.5-3.0	5.0-6.4	3.5-4.0	7.0-7.5	1.5-2.0	3.5-4.0	3.5-4.0	7.0-7.5	3.5-4.0	6.5-7.0	2.5-3.0	5.5-6.0	3.5-4.0	6.0-6.5	3.5-4.0	6.5-7.0	3.5-4.0	6.5-7.0	3.5-4.0	6.5-7.0	3.5-4.0		
Date Sampled:				11/9/2018	11/9/2018	11/9/2018	11/9/2018	11/9/2018	11/9/2018	11/9/2018	11/9/2018	11/9/2018	11/9/2018	11/9/2018	11/9/2018	11/9/2018	11/9/2018	11/9/2018	11/9/2018	11/12/2018	11/12/2018	11/12/2018	11/12/2018	11/12/2018	11/12/2018	11/12/2018	11/12/2018	
Matrix:				Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
MS Semi-volatile TIC																												
Total TIC, Semi-Volatile	-	-	mg/kg	19.01 J	3.33 J	283.7 J	12.02 J	2.46 J	1.52 J	474 J	24.26 J	110.3 J	7.35 J	0	10.06 J	30.78 J	0.83 J	1.61 J	3.01 J	2.69 J	1.8 J	9.85 J	3 J	759 J	0	4.8 J	26.16 J	
Total Alkanes	-	-	mg/kg	9.15 J	1.58 J	123.3 J	1.63 J	0	0.54 J	281 J	11.82 J	1.4 J	0	0	3.57 J	1.59 J	0	0	0	0	0	5.31 J	0.62 J	-	0	0	0	
GC/IC Semi-volatiles (NJDEP EPH)																												
C10-C12 Aromatics	-	-	mg/kg	ND (5.7)	ND (5.1)	98.6	ND (4.9)	ND (5.7)	ND (5.1)	171	ND (4.6)	ND (13)	ND (4.7)	ND (4.6)	ND (5.1)	ND (7.9)	ND (5.2)	ND (6.1)	ND (5.4)	ND (8.3)	ND (5.4)	8.57	ND (3.6)	538	ND (4.8)	ND (16)	ND (13)	
C12-C16 Aromatics	-	-	mg/kg	ND (5.7)	ND (5.1)	586	ND (4.9)	ND (5.7)	ND (5.1)	1220	22.5	ND (13)	ND (4.7)	ND (4.6)	ND (5.1)	ND (7.9)	ND (5.2)	ND (6.1)	ND (5.4)	ND (8.3)	ND (5.4)	95.4	9.75	1510	ND (4.8)	ND (16)	ND (13)	
C16-C21 Aromatics	-	-	mg/kg	139	ND (5.1)	3370	ND (4.9)	178	ND (5.1)	4730	169	ND (13)	ND (4.7)	ND (4.6)	ND (5.1)	23.2	ND (5.2)	ND (6.1)	ND (5.4)	ND (8.3)	ND (5.4)	521	45.2	3490	ND (4.8)	ND (16)	27.8	
C21-C36 Aromatics			mg/kg	179	ND (5.1)	1770	ND (4.9)	400	ND (5.1)	2060	103	68	ND (4.7)	ND (4.6)	ND (5.1)	64.4	ND (5.2)	ND (6.1)	ND (5.4)	85.3	ND (5.4)	379	ND (3.6)	1720	ND (4.8)	148	287	
Total Aromatics			mg/kg	318	ND (5.1)	5830	ND (4.9)	579	ND (5.1)	8180	294	68	ND (4.7)	ND (4.6)	ND (5.1)	87.6	ND (5.2)	ND (6.1)	ND (5.4)	85.3	ND (5.4)	1000	54.9	7260	ND (4.8)	148	315	
C9-C12 Aliphatics	-	-	mg/kg	33.9	ND (5.1)	181	20.5	ND (5.7)	ND (5.1)	549	18.3	ND (13)	ND (4.7)	ND (4.6)	ND (5.1)	ND (7.9)	ND (5.2)	ND (6.1)	ND (5.4)	ND (8.3)	ND (5.4)	58	7.79	2410	ND (4.8)	ND (16)	ND (13)	
C12-C16 Aliphatics	-	-	mg/kg	130	ND (5.1)	1490	180	ND (5.7)	ND (5.1)	3780	134	ND (13)	ND (4.7)	ND (4.6)	ND (5.1)	ND (7.9)	ND (5.2)	ND (6.1)	ND (5.4)	ND (8.3)	ND (5.4)	344	28.9	4730	ND (4.8)	ND (16)	ND (13)	
C16-C21 Aliphatics	-	-	mg/kg	204	ND (5.1)	3040	261	15	ND (5.1)	6450	250	29.4	ND (4.7)	ND (4.6)	21	44.6	ND (5.2)	ND (6.1)	ND (5.4)	31.3	ND (5.4)	491	44.4	5620	ND (4.8)	ND (16)	34.9	
C21-C40 Aliphatics	-	-	mg/kg	420	ND (5.1)	2760	718	33	ND (5.1)	7270	245	44.8	ND (4.7)	ND (4.6)	ND (5.1)	85.9	ND (5.2)	ND (6.1)	ND (5.4)	61	ND (5.4)	600	54.1	4580	ND (4.8)	142	167	
Total Aliphatics			mg/kg	788	ND (5.1)	7470	1180	48	ND (5.1)	18100	647	74.2	ND (4.7)	ND (4.6)	21	130	ND (5.2)	ND (6.1)	ND (5.4)	92.3	ND (5.4)	1490	135	17300	ND (4.8)	142	202	
Total EPH	-	-	mg/kg	1110	ND (10)	13300	1180	627	ND (10)	26200	941	142	ND (9.4)	ND (9.1)	21	218	ND (10)	ND (12)	ND (11)	178	ND (11)	2500	190	24600	ND (9.7)	290	517	
Metals Analysis																												
Aluminum	NA	78000	mg/kg	30500	29200	15000	22600	21600	21600	16900	23400	19500	22900	31700	24400	31500	22400	25500	23800	21400	19900	18400	30300	33100	27800	22700	13700	
Antimony	450	31	mg/kg	<4.4	<4.0	<3.1	6	<4.4	<4.1	7.9	<3.5	<9.6	<3.8	<3.8	<3.9	<6.1	<4.3	<4.7	<4.1	<6.2	<4.2	<2.6	<3.0	<14 <sup>h</sup>	<4.0	<12	<11	
Arsenic	19	19	mg/kg	161	17.5	19	12000	12000	14.4	53.7	116	12.5	27.6	26.2	19.6	15.8	12.4	14.2	18.1 <sup>h</sup>	20.7	22.5	63.8 <sup>h</sup>	83.4 <sup>h</sup>	70.1 <sup>h</sup>	32.7 <sup>h</sup>	33.4	<11	
Barium	59000	16000	mg/kg	546	81.8	76.6	389	45.7	45.3	204	568	<96	45.1	72.3	55.1	65.5	45.7	55.2	47.7	<62	<42	264	676	429	58.1	<120	<110	
Beryllium	140	16	mg/kg	2.7	1.5	1.3	1.6	1.3	1.3	1.4	2.4	1.1	1.3	1.6	1.3	1.9	1.5	1.6	1.5	1.3	1.2	1.4	3.4	3.7	1.5	1.3	<1.1	
Cadmium	78	78	mg/kg	3.2	<1.0	1.2	2.5	<1.1	<1.0	3.8	2.7	<2.4	<0.95	<0.95	<0.97	<1.5	<1.1	<1.2	<1.0	<1.6	<1.0	1.8 <sup>h</sup>	<2.2 <sup>h</sup>	5.8 <sup>h</sup>	<2.0 <sup>h</sup>	<3.0	<2.7	
Calcium			mg/kg	7200	2290	1360	3240	1970	2040	14400	8390	<2400	1770	1920	2380	2940	2160	2670	2380	1980	1740	2990	14100	14500	2020	3950	3010	
Chromium	-	-	mg/kg	152	53	477	108	43.1	39	1390	122	39.8	45.6	58.6	50.6	57.2	41.7	53.5	41.9	38.7	37.5	95.8	69.2	4500 <sup>h</sup>	55.9	133	73.6	
Cobalt	590	1600	mg/kg	17.8	15.8	18.3	14.3	13.6	12.1	15.9	11.4	<24	14.6	15.7	14	<15	11.1	12.1	11.3	<16	11.6	10	12.6	29.2	14.1	<30	<27	
Copper	45000	3100	mg/kg	471	34.6	75.2	762 <sup>h</sup>	16.5	15.1	296	324 <sup>h</sup>	<12	16.3 <sup>h</sup>	49.5 <sup>h</sup>	21.5 <sup>h</sup>	23.3	15.6	20.6	16.5 <sup>h</sup>	14	13.1	241 <sup>h</sup>	77.6 <sup>h</sup>	819 <sup>h</sup>	69.4 <sup>h</sup>	40.7	18.5	
Iron			mg/kg	70300	38500	28100	46800	38600	32000	32100	47400	24300	56100	42800	46600	40400	39200	43300	49500	44800	39000	36900 <sup>h</sup>	66400 <sup>h</sup>	51700 <sup>h</sup>	44400 <sup>h</sup>	58900	16100	
Lead	800	400	mg/kg	301	58.9	57.2	437 <sup>h</sup>	18.9	17.2	321	179 <sup>h</sup>	12.7	16.7 <sup>h</sup>	111 <sup>h</sup>	19.4 <sup>h</sup>	26.9	16	20.2	16.0 <sup>h</sup>	14.6	14.4	142 <sup>h</sup>	44.9 <sup>h</sup>	212 <sup>h</sup>	77.8 <sup>h</sup>	62.9	25.1	
Magnesium	-	-	mg/kg	7010	8870	4380	6990	7870	7970	4310	3370	6120	7570	8720	8840	9150	7400	8970	8070	6990	7360	4430	5080	9700	8770	9090	5450	
Manganese	5900	11000	mg/kg	378	391	209	336 <sup>h</sup>	372	384	274	218 <sup>h</sup>	125	333 <sup>h</sup>	359 <sup>h</sup>	461	457	339	394	398 <sup>h</sup>	218	277	276 <sup>h</sup>	179 <sup>h</sup>	936 <sup>h</sup>	603 <sup>h</sup>	325	62.4	
Mercury	65	23	mg/kg	6.8	0.14	0.36	7.5	0.05	0.15	0.91	2.1	0.077	<0.033	1.1	0.17	0.073	0.077	<0.077	<0.065	0.026	<0.021	1.8	0.55	1	1.7	0.15	<0.017	
Nickel	23000	1600	mg/kg	60.5	39.2	46.7	81.5	32.2	30	340	38.7	23.5	31.8	39.5	33.8	41.1	31.3	35	31.2	29.7	27.2	33	37.1	111	44.4	35.6	<21	
Potassium			mg/kg	4740	5730	2700	4500	5310	5340	2480	2910	4850	5670	6110	6110	5790	5030	5790	5370	4810	4570	2550	2590	2590	4910	<6100	<5300	
Selenium	5700	390	mg/kg	<8.8	<4.0	<3.1	24.1 <sup>h</sup>	<4.4	<4.1	<4.1	<7.0 <sup>h</sup>	<9.6	<3.8	<7.6 <sup>h</sup>	<7.8 <sup>h</sup>	<6.1	<4.3	<4.7	<8.3 <sup>h</sup>	<6.2	<4.2	<5.2 <sup>h</sup>	<8.9 <sup>h</sup>	<4.5	<7.9 <sup>h</sup>	<12	<11	
Silver	5700	390	mg/kg	<2.2	1.8	<0.77	2.9 <sup>h</sup>	<1.1	<1.0	<1.0	1.5	<2.4	<1.9 <sup>h</sup>	<1.9 <sup>h</sup>	<1.9 <sup>h</sup>	<1.5	<1.1	<1.2	<2.1 <sup>h</sup>	2.6	2.6	2.1 <sup>h</sup>	<2.2 <sup>h</sup>	<3.4 <sup>h</sup>	<2.0 <sup>h</sup>	4.2	<2.7	
Sodium	-	-	mg/kg	4790	4740	<1500	<1900	6040	7330	<2100	<1700	13700	7060	4640	5920	5990	3390	7910	8380	7930	6790	1430	2580	5630	6130	17300	24100	
Thallium			mg/kg	<4.4	<2.0	<1.5	<3.8 <sup>h</sup>	<2.2	<2.0	<2.1	<3.5 <sup>h</sup>	<4.8	<3.8 <sup>h</sup>	<3.8 <sup>h</sup>	<3.9 <sup>h</sup>	<3.1	<2.1	<2.4	<4.1 <sup>h</sup>	<3.1	<2.1	<2.6 <sup>h</sup>	<4.5 <sup>h</sup>	<6.8 <sup>h</sup>	<4.0 <sup>h</sup>	<6.1	<5.3	
Vanadium	1100	78	mg/kg	201	58.4	54.7	51.8	47.8	45.9	405	82.4	58.1	50.8	61	52.5	66.6	47.7	51.4	50.3	52.5	47.4	63.3	120	242 <sup>h</sup>	55.8	84.5	50.7	
Zinc	110000	23000	mg/kg	455	110	370	687	103	98.1	908	312	58.5	84.7	194	94.5	108	81.8	96.2	84	98.2	80.1	249	119	2120 <sup>h</sup>	166	86.5	50.8	

Table 7.5  
Smith Creek and Smith Creek Pond Deep Sediment Screening  
Former Hess Port Reading Terminal Site  
Port Reading, New Jersey

Client Sample ID:				SS-13B	SS-13C	SS-14B	SS-14C	SS-15B	SS-15C	SS-16B	SS-16C	SS-17B	SS-17C	SS-18B	SS-18C	SS-19B	SS-19C	SS-20B	SS-20C	SS-21B	SS-21C	SS-22B	SS-22C	SS-23B	SS-23C	SS-24B	SS-24C
Sample Depth:	NJ Non-Residential Direct Contact Soil	NJ Residential Direct Contact Soil		3.0-3.5	6.0-6.5	3.5-4.0	7.0-7.5	4.0-4.5	7.5-8.0	2.5-3.0	5.5-6.0	2.5-3.0	5.5-6.0	2.5-3.0	5.0-5.5	3.0-3.5	6.5-7.0	6.0-6.5	3.0-3.5	2.5-3.0	5.5-6.0	3.0-3.5	6.5-7.0	2.0-2.5	4.5-5.0	3.0-3.5	6.0-6.5
Date Sampled:			2/26/2019	2/26/2019	2/27/2019	2/27/2019	2/26/2019	2/26/2019	2/26/2019	2/26/2019	2/28/2019	2/28/2019	2/28/2019	2/28/2019	2/28/2019	3/1/2019	3/1/2019	3/1/2019	3/1/2019	3/1/2019	3/1/2019	3/20/2019	3/20/2019	3/5/2019	3/5/2019	3/5/2019	3/5/2019
Matrix:			Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
MS Volatiles (SW846 8260C)																											
Acetone	NA	70000	mg/kg	0.0878	0.125	0.0767	0.0742	0.0457	0.0529	0.0564	0.114	0.189	0.074	0.132	0.0834	0.0525	0.0483	0.0643	0.0692	0.0285	0.032	0.0431	0.0732	0.0314	0.0861	0.0927	0.0653
Benzene	5	2	mg/kg	ND (0.0011)	ND (0.0011)	0.0014	ND (0.00096)	ND (0.00089)	ND (0.00087)	ND (0.0014)	ND (0.0013)	ND (0.0017)	0.0034	0.0118	0.002	ND (0.0011)	ND (0.0011)	ND (0.00097)	ND (0.0011)	ND (0.00092)	ND (0.00081)	ND (0.00084)	ND (0.00092)	ND (0.00066)	ND (0.00074)	ND (0.0011)	ND (0.00082)
Bromochloromethane	-	-	mg/kg	ND (0.0013)	ND (0.0012)	ND (0.0010)	ND (0.0011)	ND (0.0010)	ND (0.00099)	ND (0.0016)	ND (0.0015)	ND (0.0019)	ND (0.0011)	ND (0.0013)	ND (0.0012)	ND (0.0012)	ND (0.0013)	ND (0.0011)	ND (0.0013)	ND (0.0010)	ND (0.00092)	ND (0.00096)	ND (0.0011)	ND (0.00076)	ND (0.00084)	ND (0.0012)	ND (0.00093)
Bromodichloromethane	3	1	mg/kg	ND (0.0013)	ND (0.0013)	ND (0.0011)	ND (0.0011)	ND (0.0010)	ND (0.0010)	ND (0.0016)	ND (0.0016)	ND (0.0020)	ND (0.0011)	ND (0.0013)	ND (0.0012)	ND (0.0013)	ND (0.0011)	ND (0.0013)	ND (0.0011)	ND (0.00095)	ND (0.00099)	ND (0.0011)	ND (0.00078)	ND (0.00087)	ND (0.0013)	ND (0.00096)	
Bromoform	280	81	mg/kg	ND (0.0012)	ND (0.0011)	ND (0.00096)	ND (0.0010)	ND (0.00095)	ND (0.00093)	ND (0.0015)	ND (0.0014)	ND (0.0018)	ND (0.0010)	ND (0.0012)	ND (0.0011)	ND (0.0012)	ND (0.0010)	ND (0.0012)	ND (0.0010)	ND (0.00098)	ND (0.00087)	ND (0.00090)	ND (0.00099)	ND (0.00071)	ND (0.00079)	ND (0.0012)	ND (0.00087)
Bromomethane	59	25	mg/kg	ND (0.0029)	ND (0.0028)	ND (0.0024)	ND (0.0025)	ND (0.0024)	ND (0.0023)	ND (0.0037)	ND (0.0034)	ND (0.0044)	ND (0.0026)	ND (0.0029)	ND (0.0027)	ND (0.0029) *	ND (0.0030) *	ND (0.0026) *	ND (0.0030) *	ND (0.0024) *	ND (0.0021) *	ND (0.0022)	ND (0.0024)	ND (0.0018)	ND (0.0019)	ND (0.0028)	ND (0.0022)
2-Butanone (MEK)	44000	3100	mg/kg	0.0131 J	0.0150 J	ND (0.0089) *	ND (0.0095) *	ND (0.0088)	ND (0.0086)	ND (0.014)	ND (0.013)	0.0191 J	ND (0.0097)	0.0169 J	ND (0.010)	ND (0.011)	ND (0.0096)	ND (0.011)	ND (0.0091)	ND (0.0080)	ND (0.0083)	ND (0.0082)	ND (0.0068)	ND (0.0073)	ND (0.011)	ND (0.0081)	
Carbon disulfide	110000	7800	mg/kg	0.0071	0.008	ND (0.0022)	0.0061	0.0024 J	0.0024 J	0.0079	0.0171	0.0045 J	0.0036 J	0.0046 J	0.0026 J	0.0076	0.0093	0.0067	0.0129	0.0273	0.0176	0.0089	0.0062	ND (0.0016)	ND (0.0018)	0.0058	ND (0.0020)
Carbon tetrachloride	4	2	mg/kg	ND (0.0016)	ND (0.0016)	ND (0.0013)	ND (0.0014)	ND (0.0013)	ND (0.0013)	ND (0.0020)	ND (0.0019)	ND (0.0024)	ND (0.0014)	ND (0.0016)	ND (0.0015)	ND (0.0016)	ND (0.0017)	ND (0.0014)	ND (0.0017)	ND (0.0013)	ND (0.0012)	ND (0.0012)	ND (0.0013)	ND (0.00097)	ND (0.0011)	ND (0.0016)	ND (0.0012)
Chlorobenzene	7400	510	mg/kg	ND (0.0010)	ND (0.0010)	ND (0.00084)	ND (0.00090)	ND (0.00084)	ND (0.00082)	ND (0.0013)	ND (0.0012)	ND (0.0016)	ND (0.00092)	0.0040 J	0.0012 J	ND (0.0010)	ND (0.0011)	ND (0.00091)	0.0012 J	ND (0.00086)	ND (0.00076)	ND (0.00079)	ND (0.00087)	ND (0.00062)	ND (0.00069)	0.0012 J	ND (0.00077)
Chloroethane	1100	220	mg/kg	ND (0.0020)	ND (0.0019)	ND (0.0016)	ND (0.0017)	ND (0.0016)	ND (0.0016)	ND (0.0025)	ND (0.0023)	ND (0.0030)	ND (0.0018)	ND (0.0020)	ND (0.0018)	ND (0.0020)	ND (0.0021)	ND (0.0018)	ND (0.0021)	ND (0.0017)	ND (0.0015)	ND (0.0015)	ND (0.0017)	ND (0.0012)	ND (0.0013)	ND (0.0020)	ND (0.0015)
Chloroform	2	0.6	mg/kg	ND (0.0011)	ND (0.0011)	ND (0.00088)	ND (0.00095)	ND (0.00088)	ND (0.00086)	ND (0.0014)	ND (0.0013)	ND (0.0016)	ND (0.00096)	ND (0.0011)	ND (0.0010)	ND (0.0011)	ND (0.0011)	ND (0.00096)	ND (0.0011)	ND (0.00090)	ND (0.00080)	ND (0.00083)	ND (0.00091)	ND (0.00065)	ND (0.00073)	ND (0.0011)	ND (0.00081)
Chloromethane	12	4	mg/kg	ND (0.0057)	ND (0.0056)	ND (0.0047)	ND (0.0050)	ND (0.0046)	ND (0.0045)	ND (0.0073)	ND (0.0067)	ND (0.0087)	ND (0.0051)	ND (0.0058)	ND (0.0053)	ND (0.0056)	ND (0.0059)	ND (0.0051)	ND (0.0059)	ND (0.0048)	ND (0.0042)	ND (0.0044)	ND (0.0048)	ND (0.0035)	ND (0.0038)	ND (0.0056)	ND (0.0042)
Cyclohexane	-	-	mg/kg	ND (0.0012)	ND (0.0012)	ND (0.00096)	ND (0.0010)	ND (0.00096)	ND (0.00094)	ND (0.0015)	ND (0.0014)	ND (0.0018)	0.0014 J	0.0050 J	0.0015 J	ND (0.0012)	ND (0.0012)	ND (0.0010)	ND (0.00099)	ND (0.00087)	ND (0.00090)	ND (0.0010)	ND (0.00071)	ND (0.00079)	ND (0.0012)	ND (0.00088)	
1,2-Dibromo-3-chloropropane	0.2	0.08	mg/kg	ND (0.0025)	ND (0.0024)	ND (0.0020)	ND (0.0021)	ND (0.0020)	ND (0.0019)	ND (0.0031)	ND (0.0029)	ND (0.0037)	ND (0.0022)	ND (0.0025)	ND (0.0022)	ND (0.0024)	ND (0.0025)	ND (0.0022)	ND (0.0025)	ND (0.0018)	ND (0.0019)	ND (0.0020)	ND (0.0015)	ND (0.0016)	ND (0.0024)	ND (0.0018)	
Dibromochloromethane	8	3	mg/kg	ND (0.00099)	ND (0.00096)	ND (0.00080)	ND (0.00086)	ND (0.00080)	ND (0.00078)	ND (0.0013)	ND (0.0012)	ND (0.0015)	ND (0.00088)	ND (0.00099)	ND (0.00091)	ND (0.00097)	ND (0.0010)	ND (0.00087)	ND (0.0010)	ND (0.00082)	ND (0.00073)	ND (0.00075)	ND (0.00083)	ND (0.00060)	ND (0.00066)	ND (0.00097)	ND (0.00073)
1,2-Dibromoethane	0.04	0.008	mg/kg	ND (0.00095)	ND (0.00092)	ND (0.00077)	ND (0.00083)	ND (0.00077)	ND (0.00075)	ND (0.0012)	ND (0.0011)	ND (0.0014)	ND (0.00084)	ND (0.00096)	ND (0.00087)	ND (0.00093)	ND (0.00098)	ND (0.00084)	ND (0.00098)	ND (0.00079)	ND (0.00070)	ND (0.00072)	ND (0.00080)	ND (0.00057)	ND (0.00064)	ND (0.00093)	ND (0.00070)
1,2-Dichlorobenzene	59000	5300	mg/kg	ND (0.00089)	ND (0.00086)	ND (0.00072)	ND (0.00077)	ND (0.00072)	ND (0.00070)	ND (0.0011)	ND (0.0010)	ND (0.0014)	ND (0.00079)	0.0012 J	ND (0.00082)	ND (0.00087)	ND (0.00092)	ND (0.00079)	ND (0.00092)	ND (0.00074)	ND (0.00066)	ND (0.00068)	ND (0.00075)	ND (0.00054)	ND (0.00060)	ND (0.00087)	ND (0.00066)
1,3-Dichlorobenzene	59000	5300	mg/kg	ND (0.0011)	ND (0.0010)	ND (0.00085)	ND (0.00091)	ND (0.00085)	ND (0.00083)	ND (0.0013)	ND (0.0012)	ND (0.0016)	ND (0.00093)	0.0019 J	ND (0.00096)	ND (0.0010)	ND (0.0011)	ND (0.00093)	ND (0.0011)	ND (0.00087)	ND (0.00080)	ND (0.00077)	ND (0.00088)	ND (0.00063)	ND (0.00070)	ND (0.0010)	ND (0.00078)
1,4-Dichlorobenzene	13	5	mg/kg	ND (0.0010)	ND (0.00098)	ND (0.00082)	ND (0.00087)	ND (0.00081)	ND (0.00079)	ND (0.0013)	ND (0.0012)	ND (0.0015)	ND (0.00089)	0.0037	ND (0.00092)	ND (0.00099)	ND (0.0010)	ND (0.00089)	ND (0.0010)	ND (0.00084)	ND (0.00074)	ND (0.00077)	ND (0.00084)	ND (0.00061)	ND (0.00067)	ND (0.00098)	ND (0.00074)
Dichlorodifluoromethane	230000	490	mg/kg	ND (0.0019)	ND (0.0018)	ND (0.0015)	ND (0.0016)	ND (0.0015)	ND (0.0024)	ND (0.0015)	ND (0.0022)	ND (0.0028)	ND (0.0016)	ND (0.0017)	ND (0.0018)	ND (0.0019)	ND (0.0016)	ND (0.0019)	ND (0.0015)	ND (0.0014) *	ND (0.0016) *	ND (0.0011)	ND (0.0012) *	ND (0.0018)	ND (0.0014) *		
1,1-Dichloroethane	24	8	mg/kg	ND (0.0011)	ND (0.0011)	ND (0.00091)	ND (0.00098)	ND (0.00091)	ND (0.00089)	ND (0.0014)	ND (0.0013)	ND (0.0017)	ND (0.0010)	ND (0.0011)	ND (0.0010)	ND (0.0011)	ND (0.0012)	ND (0.00099)	ND (0.0012)	ND (0.00093)	ND (0.00083)	ND (0.00086)	ND (0.00094)	ND (0.00068)	ND (0.00075)	ND (0.0011)	ND (0.00083)
1,2-Dichloroethane	3	0.9	mg/kg	ND (0.0014)	ND (0.0013)	ND (0.0011)	ND (0.0012)	ND (0.0011)	ND (0.0011)	ND (0.0017)	ND (0.0016)	ND (0.0021)	ND (0.0014)	ND (0.0013)	ND (0.0014)	ND (0.0012)	ND (0.0014)	ND (0.0012)	ND (0.0014)	ND (0.0011)	ND (0.0010)	ND (0.0012)	ND (0.00083)	ND (0.00092)	ND (0.0013)	ND (0.0010)	
1,1-Dichloroethene	150	11	mg/kg	ND (0.0019)	ND (0.0019)	ND (0.0016)	ND (0.0017)	ND (0.0016)	ND (0.0015)	ND (0.0024)	ND (0.0022)	ND (0.0029)	ND (0.0017)	ND (0.0019)	ND (0.0018)	ND (0.0019)	ND (0.0020)	ND (0.0017)	ND (0.0020)	ND (0.0016)	ND (0.0014)	ND (0.0015)	ND (0.0016)	ND (0.0012)	ND (0.0013)	ND (0.0019)	ND (0.0014)
cis-1,2-Dichloroethene	560	230	mg/kg	ND (0.0028)	ND (0.0027)	ND (0.0023)	ND (0.0024)	ND (0.0023)	ND (0.0022)	ND (0.0035)	ND (0.0033)	ND (0.0042)	ND (0.0025)	ND (0.0028)	ND (0.0026)	ND (0.0027)	ND (0.0029)	ND (0.0025)	ND (0.0029)	ND (0.0023)	ND (0.0021)	ND (0.0023)	ND (0.0017)	ND (0.0019)	ND (0.0027)	ND (0.0021)	
trans-1,2-Dichloroethene	720	300	mg/kg	ND (0.0020)	ND (0.0019)	ND (0.0016)	ND (0.0017)	ND (0.0016)	ND (0.0015)	ND (0.0025)	ND (0.0023)	ND (0.0030)	ND (0.0017)	ND (0.0020)	ND (0.0018)	ND (0.0019)	ND (0.0020)	ND (0.0017)	ND (0.0020)	ND (0.0016)	ND (0.0014)	ND (0.0015)	ND (0.0016)	ND (0.0012)	ND (0.0013)	ND (0.0019)	ND (0.0014)
1,2-Dichloropropane	5	2	mg/kg	ND (0.0012)	ND (0.0																						



Table 7.5  
Smith Creek and Smith Creek Pond Deep Sediment Screening  
Former Hess Port Reading Terminal Site  
Port Reading, New Jersey

Client Sample ID:				SS-13B	SS-13C	SS-14B	SS-14C	SS-15B	SS-15C	SS-16B	SS-16C	SS-17B	SS-17C	SS-18B	SS-18C	SS-19B	SS-19C	SS-20B	SS-20C	SS-21B	SS-21C	SS-22B	SS-22C	SS-23B	SS-23C	SS-24B	SS-24C
Sample Depth	NJ Non-Residential Direct Contact Soil	NJ Residential Direct Contact Soil		3.0-3.5	6.0-6.5	3.5-4.0	7.0-7.5	4.0-4.5	7.5-8.0	2.5-3.0	5.5-6.0	2.5-3.0	5.5-6.0	2.5-3.0	5.0-5.5	3.0-3.5	6.5-7.0	6.0-6.5	3.0-3.5	2.5-3.0	5.5-6.0	3.0-3.5	6.5-7.0	2.0-2.5	4.5-5.0	3.0-3.5	6.0-6.5
Date Sampled:			2/26/2019	2/26/2019	2/27/2019	2/27/2019	2/26/2019	2/26/2019	2/28/2019	2/28/2019	2/28/2019	2/28/2019	2/28/2019	2/28/2019	2/28/2019	2/28/2019	3/1/2019	3/1/2019	3/1/2019	3/1/2019	3/1/2019	3/1/2019	3/5/2019	3/5/2019	3/5/2019	3/5/2019	3/5/2019
Matrix:			Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
MS Semi-volatiles (SW846 8270D)																											
2-Chlorophenol	2200	310	mg/kg	ND (0.033)	ND (0.033)	ND (0.030)	ND (0.031)	ND (0.031)	ND (0.029)	ND (0.048)	ND (0.043)	ND (0.042)	ND (0.032)	ND (0.035)	ND (0.029)	ND (0.032)	ND (0.032)	ND (0.032)	ND (0.029)	ND (0.030)	ND (0.030)	ND (0.030)	ND (0.032)	ND (0.028)	ND (0.026)	ND (0.031)	ND (0.027)
4-Chloro-3-methyl phenol	-	-	mg/kg	ND (0.041)	ND (0.042)	ND (0.037)	ND (0.039)	ND (0.038)	ND (0.036)	ND (0.059) <sup>a</sup>	ND (0.053) <sup>a</sup>	ND (0.052) <sup>a</sup>	ND (0.040) <sup>a</sup>	ND (0.043) <sup>a</sup>	ND (0.036) <sup>a</sup>	ND (0.040)	ND (0.039)	ND (0.039)	ND (0.036)	ND (0.037)	ND (0.038)	ND (0.037) <sup>a</sup>	ND (0.040) <sup>a</sup>	ND (0.035) <sup>a</sup>	ND (0.032) <sup>a</sup>	ND (0.039) <sup>a</sup>	ND (0.034) <sup>a</sup>
2,4-Dichlorophenol	2100	180	mg/kg	ND (0.057)	ND (0.058)	ND (0.051)	ND (0.054)	ND (0.053)	ND (0.050)	ND (0.083)	ND (0.074)	ND (0.072)	ND (0.056)	ND (0.060)	ND (0.050)	ND (0.055)	ND (0.055)	ND (0.055)	ND (0.050)	ND (0.051)	ND (0.052)	ND (0.051)	ND (0.055)	ND (0.049)	ND (0.044)	ND (0.054)	ND (0.047)
2,4-Dimethylphenol	14000	1200	mg/kg	ND (0.12)	ND (0.12)	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.10)	ND (0.17)	ND (0.15)	ND (0.15)	ND (0.12)	ND (0.13)	ND (0.10)	ND (0.12)	ND (0.11)	ND (0.11)	ND (0.10)	ND (0.11)	ND (0.11)	ND (0.11)	ND (0.12)	ND (0.10)	ND (0.092)	ND (0.11)	ND (0.098)
2,4-Dinitrophenol	1400	120	mg/kg	ND (0.25)	ND (0.25)	ND (0.23)	ND (0.24)	ND (0.24)	ND (0.22)	ND (0.36)	ND (0.32)	ND (0.32)	ND (0.25)	ND (0.27)	ND (0.22)	ND (0.24)	ND (0.24)	ND (0.24)	ND (0.22)	ND (0.23)	ND (0.23)	ND (0.23)	ND (0.24)	ND (0.21)	ND (0.20)	ND (0.24)	ND (0.21)
4,6-Dinitro-o-cresol	68	6	mg/kg	ND (0.072)	ND (0.073)	ND (0.064)	ND (0.068)	ND (0.067)	ND (0.063)	ND (0.10)	ND (0.092)	ND (0.090)	ND (0.070)	ND (0.078)	ND (0.062)	ND (0.069)	ND (0.069)	ND (0.069)	ND (0.063)	ND (0.065)	ND (0.065)	ND (0.064)	ND (0.069)	ND (0.061)	ND (0.056)	ND (0.068)	ND (0.059)
2-Methylphenol	3400	310	mg/kg	ND (0.043)	ND (0.043)	ND (0.038)	ND (0.040)	ND (0.040)	ND (0.037)	ND (0.062)	ND (0.055)	ND (0.054)	ND (0.042)	ND (0.045)	ND (0.037)	ND (0.041)	ND (0.041)	ND (0.041)	ND (0.038)	ND (0.039)	ND (0.039)	ND (0.038)	ND (0.041)	ND (0.037)	ND (0.033)	ND (0.041)	ND (0.035)
3,4-Methylphenol	-	-	mg/kg	ND (0.055)	ND (0.056)	ND (0.050)	ND (0.052)	ND (0.051)	ND (0.048)	ND (0.080)	ND (0.071)	ND (0.069)	ND (0.054)	ND (0.058)	ND (0.048)	ND (0.053)	ND (0.053)	ND (0.053)	ND (0.048)	ND (0.050)	ND (0.050)	ND (0.050)	ND (0.053)	ND (0.047)	ND (0.043)	ND (0.052)	ND (0.045)
2-Nitrophenol	-	-	mg/kg	ND (0.044)	ND (0.045)	ND (0.040) <sup>a</sup>	ND (0.042) <sup>a</sup>	ND (0.041) <sup>a</sup>	ND (0.039)	ND (0.064)	ND (0.057)	ND (0.056)	ND (0.043)	ND (0.047)	ND (0.038)	ND (0.043)	ND (0.042)	ND (0.042)	ND (0.039)	ND (0.040)	ND (0.040)	ND (0.040)	ND (0.043)	ND (0.038)	ND (0.034)	ND (0.042)	ND (0.036)
4-Nitrophenol	-	-	mg/kg	ND (0.18) <sup>b</sup>	ND (0.18) <sup>b</sup>	ND (0.16) <sup>a</sup>	ND (0.17) <sup>a</sup>	ND (0.17) <sup>a</sup>	ND (0.16) <sup>a</sup>	ND (0.26) <sup>a</sup>	ND (0.23) <sup>a</sup>	ND (0.23) <sup>a</sup>	ND (0.17) <sup>a</sup>	ND (0.19) <sup>a</sup>	ND (0.16) <sup>a</sup>	ND (0.17)	ND (0.17)	ND (0.17)	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.16)	ND (0.17)	ND (0.15)	ND (0.14)	ND (0.17)
Pentachlorophenol	3	0.9	mg/kg	ND (0.063)	ND (0.064)	ND (0.057)	ND (0.059)	ND (0.059)	ND (0.055)	ND (0.091)	ND (0.081)	ND (0.079)	ND (0.061)	ND (0.068)	ND (0.055)	ND (0.061)	ND (0.060)	ND (0.060)	ND (0.055)	ND (0.057)	ND (0.057)	ND (0.057)	ND (0.061)	ND (0.054)	ND (0.049)	ND (0.060)	ND (0.051)
Phenol	210000	18000	mg/kg	ND (0.035)	ND (0.035)	ND (0.031)	ND (0.033)	ND (0.033)	ND (0.031)	ND (0.051)	ND (0.045)	ND (0.044)	ND (0.034)	ND (0.037)	ND (0.030)	ND (0.034)	ND (0.034)	ND (0.033)	ND (0.031)	ND (0.031)	ND (0.031)	ND (0.031)	ND (0.031)	ND (0.030)	ND (0.027)	ND (0.033)	ND (0.029)
2,3,4,6-Tetrachlorophenol	-	-	mg/kg	ND (0.044) <sup>a</sup>	ND (0.045) <sup>a</sup>	ND (0.040)	ND (0.042)	ND (0.041) <sup>a</sup>	ND (0.039) <sup>a</sup>	ND (0.064)	ND (0.057)	ND (0.056)	ND (0.043)	ND (0.047)	ND (0.038)	ND (0.043)	ND (0.043)	ND (0.042)	ND (0.039)	ND (0.040)	ND (0.041)	ND (0.040)	ND (0.043)	ND (0.038)	ND (0.034)	ND (0.042)	ND (0.036)
2,4,5-Trichlorophenol	68000	6100	mg/kg	ND (0.050)	ND (0.051)	ND (0.045)	ND (0.047)	ND (0.047)	ND (0.044)	ND (0.073)	ND (0.065)	ND (0.063)	ND (0.049)	ND (0.053)	ND (0.044)	ND (0.048)	ND (0.048)	ND (0.044)	ND (0.045)	ND (0.046)	ND (0.045)	ND (0.048)	ND (0.043)	ND (0.039)	ND (0.048)	ND (0.041)	
2,4,6-Trichlorophenol	74	19	mg/kg	ND (0.040)	ND (0.040)	ND (0.036)	ND (0.038)	ND (0.037)	ND (0.035)	ND (0.058)	ND (0.051)	ND (0.050)	ND (0.039)	ND (0.042)	ND (0.035)	ND (0.039)	ND (0.038)	ND (0.038)	ND (0.035)	ND (0.036)	ND (0.036)	ND (0.036)	ND (0.039)	ND (0.034)	ND (0.031)	ND (0.038)	ND (0.033)
Acenaphthene	37000	3400	mg/kg	ND (0.023)	ND (0.023)	ND (0.021)	ND (0.022)	ND (0.022)	ND (0.020)	ND (0.033)	ND (0.030)	ND (0.029)	ND (0.023)	0.0641 J	0.0267 J	ND (0.022)	ND (0.022)	ND (0.022)	ND (0.020)	ND (0.021)	ND (0.021)	ND (0.021)	ND (0.022)	ND (0.020)	ND (0.018)	0.0237 J	ND (0.019)
Acenaphthylene	300000	NA	mg/kg	ND (0.034)	ND (0.034)	ND (0.031)	ND (0.032)	ND (0.032)	ND (0.030)	ND (0.049)	ND (0.044)	ND (0.043)	ND (0.033)	ND (0.036)	ND (0.030)	ND (0.033)	ND (0.033)	ND (0.033)	ND (0.030)	ND (0.031)	ND (0.031)	ND (0.031)	ND (0.033)	ND (0.029)	ND (0.026)	ND (0.032)	ND (0.028)
Acetophenone	5	2	mg/kg	ND (0.014)	ND (0.015)	ND (0.013)	ND (0.014)	ND (0.013)	ND (0.013)	ND (0.021)	ND (0.019)	ND (0.018)	ND (0.014)	ND (0.015)	ND (0.012)	ND (0.014)	ND (0.014)	ND (0.014)	ND (0.013)	ND (0.013)	ND (0.013)	ND (0.013)	ND (0.014)	ND (0.012)	ND (0.011)	ND (0.014)	ND (0.012)
Anthracene	30000	17000	mg/kg	ND (0.041)	ND (0.042)	ND (0.037)	ND (0.039)	ND (0.038)	ND (0.036)	ND (0.059)	ND (0.053)	ND (0.052)	ND (0.040)	0.162	0.0433 J	ND (0.040)	ND (0.039)	ND (0.039)	ND (0.036)	ND (0.037)	ND (0.038)	ND (0.037)	ND (0.040)	ND (0.035)	ND (0.032)	0.0495 J	ND (0.034)
Atrazine	2400	210	mg/kg	ND (0.029)	ND (0.029)	ND (0.026) <sup>a</sup>	ND (0.027) <sup>a</sup>	ND (0.027)	ND (0.025)	ND (0.042)	ND (0.037)	ND (0.036)	ND (0.028)	ND (0.030)	ND (0.025)	ND (0.028)	ND (0.028)	ND (0.027)	ND (0.025) <sup>a</sup>	ND (0.026)	ND (0.026)	ND (0.026)	ND (0.026)	ND (0.028)	ND (0.024)	ND (0.022)	ND (0.027)
Benzo(a)anthracene	17	5	mg/kg	ND (0.019)	ND (0.019)	0.0314 J	ND (0.018)	ND (0.018)	ND (0.017)	ND (0.027)	ND (0.024)	0.105	0.0242 J	0.109	0.0535 J	ND (0.018)	ND (0.018)	ND (0.018)	ND (0.017)	ND (0.017)	ND (0.017)	ND (0.017)	ND (0.017)	ND (0.018)	ND (0.016)	ND (0.015)	0.0638 J
Benzo(a)pyrene	2	0.5	mg/kg	ND (0.030)	ND (0.031)	ND (0.027) <sup>a</sup>	ND (0.029) <sup>a</sup>	ND (0.028)	ND (0.027)	ND (0.044)	ND (0.039)	0.0939	ND (0.030)	0.0854	0.0444 J	ND (0.030)	ND (0.029)	ND (0.029)	ND (0.027)	ND (0.027)	ND (0.028)	ND (0.027)	ND (0.029)	ND (0.026)	ND (0.024)	0.0443 J	ND (0.025)
Benzo(b)fluoranthene	17	5	mg/kg	ND (0.030)	ND (0.030)	ND (0.027) <sup>a</sup>	ND (0.028) <sup>a</sup>	ND (0.028)	ND (0.026)	ND (0.043)	ND (0.038)	0.135	ND (0.029)	0.0933	0.0508 J	ND (0.029)	ND (0.028)	ND (0.028)	ND (0.026)	ND (0.027)	ND (0.027)	ND (0.027)	ND (0.029)	ND (0.025)	ND (0.023)	0.0550 J	ND (0.024)
Benzo(g,h,i)perylene	30000	380000	mg/kg	ND (0.033)	ND (0.034)	ND (0.030)	ND (0.032)	ND (0.031)	ND (0.029)	ND (0.048)	ND (0.043)	0.0674 J	ND (0.033)	0.0757	0.0462 J	ND (0.032)	ND (0.032)	ND (0.032)	ND (0.029)	ND (0.030)	ND (0.031)	ND (0.030)	ND (0.032)	ND (0.029)	ND (0.026)	ND (0.032)	ND (0.027)

Table 7.5  
Smith Creek and Smith Creek Pond Deep Sediment Screening  
Former Hess Port Reading Terminal Site  
Port Reading, New Jersey

Client Sample ID:	NJ Non-Residential Direct Contact Soil	NJ Residential Direct Contact Soil		SS-13B	SS-13C	SS-14B	SS-14C	SS-15B	SS-15C	SS-16B	SS-16C	SS-17B	SS-17C	SS-18B	SS-18C	SS-19B	SS-19C	SS-20B	SS-20C	SS-21B	SS-21C	SS-22B	SS-22C	SS-23B	SS-23C	SS-24B	SS-24C		
Sample Depth:			3.0-3.5	6.0-6.5	3.5-4.0	7.0-7.5	4.0-4.5	7.5-8.0	2.5-3.0	5.5-6.0	2.5-3.0	5.5-6.0	2.5-3.0	5.5-6.0	2.5-3.0	5.0-5.5	3.0-3.5	6.5-7.0	6.0-6.5	3.0-3.5	2.5-3.0	5.5-6.0	3.0-3.5	6.5-7.0	2.0-2.5	4.5-5.0	3.0-3.5	6.0-6.5	
Date Sampled:			2/26/2019	2/26/2019	2/27/2019	2/27/2019	2/28/2019	2/26/2019	2/28/2019	2/28/2019	2/28/2019	2/28/2019	2/28/2019	2/28/2019	2/28/2019	2/28/2019	3/1/2019	3/1/2019	3/1/2019	3/1/2019	3/1/2019	3/1/2019	3/5/2019	3/5/2019	3/5/2019	3/5/2019	3/5/2019	3/5/2019	3/5/2019
Matrix:			Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Metals Analysis																													
Aluminum	NA	78000	mg/kg	21600	20800	21800	22000	22400	21600	23100	28900	20500	19300	25400	24400	27500	24600	25500	27700	22500	27700	22500	23500	23400	22300	28400	33300		
Antimony	450	31	mg/kg	<3.9	<4.1	<4.0	<4.3	<3.7	<3.6	<5.9	<5.4	<5.5	<4.1	<4.4	<3.6	<4.0	<4.1	<4.0	<3.7	<3.8	<4.0	<3.8	<3.8	<3.6	<3.1	<4.0	<3.1		
Arsenic	19	19	mg/kg	10.7	16.7	28.4	21.7	9.5	12.4	13.4	16.2	57.7	39.2 <sup>f</sup>	141 <sup>f</sup>	101 <sup>f</sup>	9	9.3	45.6 <sup>f</sup>	101 <sup>f</sup>	19.6 <sup>f</sup>	22.8 <sup>f</sup>	10.9	11.6	88.8	96.2	76.4	100 <sup>f</sup>		
Barium	59000	16000	mg/kg	48.7	47.9	93.2	77.2	47.9	48.6	<59	<54	182	154	346	379	56.6	53.4	179	498	89.5	44	50.3	47.9	328	735	256	787		
Beryllium	140	16	mg/kg	1.2	1.2	1.4	1.3	1.2	1.2	1.2	1.3	1.7	1.4	1.8	1.9	1.3	1.1	1.7	3.3	1.3	1.2	1.2	1.1	2.1	3.5	1.9	3.6		
Cadmium	78	78	mg/kg	<0.98	<1.0	<0.99	<1.1	<0.93	<0.91	<1.5	<1.3	4	<1.0	4.9	2.1	<0.99	<1.0	1.1	2.1	<0.95	<1.0	<0.94	<0.96	2.3	<0.76	2.4	<0.78		
Calcium	-	-	mg/kg	2950	3790	3480	3820	2160	2390	2870	2620	4620	5090	5980	7050	2080	3180	3940	9120	3180	2030	3310	3240	4000	15700	2800	17200		
Chromium	-	-	mg/kg	40.3	42.2	55.4	52.4	40.8	42	42.8	47.4	98.3	67.8	297	211	44.2	42.5	110	108	47.9	44.4	40.8 <sup>f</sup>	39.6 <sup>f</sup>	118	59.4 <sup>f</sup>	129 <sup>f</sup>	67.6 <sup>f</sup>		
Cobalt	590	1600	mg/kg	11.8	11	11.8	12.2	11.9	12.6	<15	<13	<14	10.8	14.7	12.4	11.8	12.4	13.5	15	10.9	12.7	12.4	12.2	21.7	13.9	24	14.1		
Copper	45000	3100	mg/kg	16.1	17.8	55.7	48.8 <sup>f</sup>	16.5	16	27.1	15.7	354	128 <sup>f</sup>	595 <sup>f</sup>	351 <sup>f</sup>	21.5	18.9	120 <sup>f</sup>	159 <sup>f</sup>	20.5 <sup>f</sup>	13.2 <sup>f</sup>	13.9 <sup>f</sup>	12.4 <sup>f</sup>	299 <sup>f</sup>	45.3 <sup>f</sup>	288 <sup>f</sup>	60.2 <sup>f</sup>		
Iron	-	-	mg/kg	37400	45500	39600	45800	33000	35200	34700	53300	53900	52100	54300	59900	34600	38400	48500	55500	45400	48800	36800	36900	62700	73700	63900	79300		
Lead	800	400	mg/kg	16.3	16.1	39	31.6	16.8	16.7	23.8	20.7	242	74.7 <sup>f</sup>	366 <sup>f</sup>	207 <sup>f</sup>	24.2	17.2	82.6 <sup>f</sup>	95.4 <sup>f</sup>	20.1 <sup>f</sup>	17.4 <sup>f</sup>	16.4	15.7	180 <sup>f</sup>	32.2 <sup>f</sup>	181 <sup>f</sup>	41.2 <sup>f</sup>		
Magnesium	-	-	mg/kg	9160	8820	7860	8220	8580	8770	8760	9650	6890	6230	8740	5970	9420	9170	7410	4840	7980	8920	9310	9280	7670	5930	9910	6900		
Manganese	5900	11000	mg/kg	405	449	500	556 <sup>f</sup>	340	485	278	377	260	278 <sup>f</sup>	391 <sup>f</sup>	290 <sup>f</sup>	387	450	377 <sup>f</sup>	170 <sup>f</sup>	383 <sup>f</sup>	393 <sup>f</sup>	491 <sup>f</sup>	418 <sup>f</sup>	547 <sup>f</sup>	157 <sup>f</sup>	556 <sup>f</sup>	187 <sup>f</sup>		
Mercury	65	23	mg/kg	<0.049	<0.055	0.9	0.075	<0.048	<0.051	0.11	0.084	2	0.23	9.3	6.4	0.071	<0.051	1.1	1.9	0.062	<0.050	<0.052	<0.051	500	500	500	500		
Nickel	23000	1600	mg/kg	31.1	29.7	34.1	34.8	31	32.6	30.8	36.9	60.5	37.7	63.1	71.3	34.4	33.3	47.1	79.4	34.5	33.5	31.8	31.5	53.5	41.2	57.2	43		
Potassium	-	-	mg/kg	4890	4960	4290	4610	4830	4970	5270	6160	3450	3460	4200	3260	5130	4820	4310	2660	4390	4940	5160	5140	4550	2790	5830	3230		
Selenium	5700	390	mg/kg	<3.9	<8.2	<4.0	<8.6 <sup>f</sup>	<3.7	<3.6	<5.9	<11	<5.5	<8.1 <sup>f</sup>	9.5 <sup>f</sup>	<7.3 <sup>f</sup>	<4.0	<4.1	<7.9 <sup>f</sup>	<7.5 <sup>f</sup>	<7.6 <sup>f</sup>	<8.0 <sup>f</sup>	<7.5 <sup>f</sup>	<7.7 <sup>f</sup>	<11 <sup>f</sup>	<15 <sup>f</sup>	<12 <sup>f</sup>	<16 <sup>f</sup>		
Silver	5700	390	mg/kg	<0.98	<2.0	<0.99	<2.1 <sup>f</sup>	<0.93	<0.91	<1.5	<2.7	3.6	<2.0 <sup>f</sup>	5.1 <sup>f</sup>	<2.0 <sup>f</sup>	<0.99	<1.0	<2.0 <sup>f</sup>	<1.9 <sup>f</sup>	<1.9 <sup>f</sup>	<2.0 <sup>f</sup>	<1.9 <sup>f</sup>	<2.7 <sup>f</sup>	<3.8 <sup>f</sup>	<3.0 <sup>f</sup>	<3.9 <sup>f</sup>			
Sodium	-	-	mg/kg	3900	3130	4350	3610	7420	7310	9670	9190	11900	7070	9380	6290	7900	7420	6760	6230	5760	6670	8750	9080	5630	4560	8010	5800		
Thallium	-	-	mg/kg	<2.0	<4.1	<2.0	<4.3 <sup>f</sup>	<1.9	<1.8	<3.0	<5.4	<2.8	<4.1 <sup>f</sup>	<4.4 <sup>f</sup>	<3.6 <sup>f</sup>	<2.0	<2.0	<4.0 <sup>f</sup>	<3.7 <sup>f</sup>	<3.8 <sup>f</sup>	<4.0 <sup>f</sup>	<3.8 <sup>f</sup>	<3.8 <sup>f</sup>	<5.3 <sup>f</sup>	<7.6 <sup>f</sup>	<6.1 <sup>f</sup>	<7.8 <sup>f</sup>		
Vanadium	1100	78	mg/kg	47.1	51.8	65.1	61.3	48.7	49.9	50.9	58.4	151	96.1	102	183	55.6	51.9	136	488	72	51.9	49.9	47.2	89.9	122	95.9	119		
Zinc	11000	23000	mg/kg	94.1	86.6	117	115	87.1	91.7	93.2	104	586	169	562	341	92.8	89.9	160	181	86.4	94.1	83.5	82.1	288	70.7	296	99.7		

Table 7.5  
Smith Creek and Smith Creek Pond Deep Sediment Screening  
Former Hess Port Reading Terminal Site  
Port Reading, New Jersey

Client Sample ID:				SS-25B	SS-25C	SS-26B	SS-26C	SS-27B	SS-28C	SS-29B	SS-29C	SS-30B	SS-30C	SS-31B	SS-31C	SS-32B	SS-32C	SS-33B	SS-33C	SS-34B	SS-34C	SS-35B	SS-35C
Sample Depth	NJ Non-Residential Direct Contact Soil	NJ Residential Direct Contact Soil		2.0-2.5	3.5-4.0	2.0-2.5	3.5-4.0	2.5-3.0	4.5-5.0	2.0-2.5	3.5-4.0	2.0-2.5	3.5-4.0	2.5-3.0	5.0-5.5	2.5-3.0	4.5-5.0	1.0-1.5	1.5-2.0	2.5-3.0	4.5-5.0	2.0-2.5	3.5-4.0
Date Sampled:			2/21/2019	2/21/2019	2/22/2019	2/22/2019	2/21/2019	2/21/2019	2/22/2019	2/22/2019	2/21/2019	2/21/2019	2/22/2019	2/22/2019	2/22/2019	2/22/2019	2/22/2019	2/21/2019	2/21/2019	2/22/2019	2/22/2019	2/22/2019	2/22/2019
Matrix:				Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
MS Volatiles (SW846 8260C)																							
Acetone	NA	70000	mg/kg	0.0298 J	0.0488 J	0.0167	0.0451	0.0383	0.0797	0.379	0.243	0.0407	0.0233 J	0.0524	0.0984	0.0445	0.0229	0.0305	0.0247	0.114	0.107	0.0616	0.0872
Benzene	5	2	mg/kg	ND (0.0015)	ND (0.0019)	ND (0.00060)	ND (0.0015)	ND (0.0010)	ND (0.0020)	0.0064	0.0032	ND (0.00094)	ND (0.00093)	ND (0.0013)	ND (0.0028)	ND (0.00055)	ND (0.00047)	ND (0.00088)	ND (0.00081)	ND (0.0010)	ND (0.0011)	ND (0.00076)	ND (0.00076)
Bromochloromethane	-	-	mg/kg	ND (0.0017)	ND (0.0021)	ND (0.00068)	ND (0.0017)	ND (0.0012)	ND (0.0022)	ND (0.0023)	ND (0.0015)	ND (0.0011)	ND (0.0011)	ND (0.0015)	ND (0.0032)	ND (0.00063)	ND (0.00054)	ND (0.0010)	ND (0.00092)	ND (0.0011)	ND (0.0012)	ND (0.00087)	ND (0.00087)
Bromodichloromethane	3	1	mg/kg	ND (0.0017)	ND (0.0022)	ND (0.00071)	ND (0.0017)	ND (0.0012)	ND (0.0023)	ND (0.0015)	ND (0.0011)	ND (0.0011)	ND (0.0011)	ND (0.0015)	ND (0.0033)	ND (0.00065)	ND (0.00056)	ND (0.0010)	ND (0.00095)	ND (0.0012)	ND (0.0013)	ND (0.00090)	ND (0.00089)
Bromoform	280	81	mg/kg	ND (0.0016)	ND (0.0020)	ND (0.00064)	ND (0.0016)	ND (0.0011)	ND (0.0021)	ND (0.0021)	ND (0.0014)	ND (0.0010)	ND (0.00099)	ND (0.0014)	ND (0.0030)	ND (0.00059)	ND (0.00051)	ND (0.00094)	ND (0.00086)	ND (0.0011)	ND (0.0012)	ND (0.00081)	ND (0.00081)
Bromomethane	59	25	mg/kg	ND (0.0038)	ND (0.0049)	ND (0.0016)	ND (0.0039)	ND (0.0027)	ND (0.0052)	ND (0.0034) *	ND (0.0025)	ND (0.00091)	ND (0.0034) *	ND (0.0015) *	ND (0.0012) *	ND (0.00055)	ND (0.0047)	ND (0.00088)	ND (0.00080)	ND (0.0027) *	ND (0.0029) *	ND (0.0029) *	ND (0.0029) *
2-Butanone (MEK)	44000	3100	mg/kg	ND (0.014)	ND (0.018)	ND (0.0060)	ND (0.014)	ND (0.010)	ND (0.019)	0.0777	0.0298 J	ND (0.0093)	ND (0.0092)	ND (0.013)	ND (0.028)	ND (0.0055)	ND (0.0047)	ND (0.00088)	0.0170 J	0.0143 J	ND (0.0076)	0.0091 J	
Carbon disulfide	110000	7800	mg/kg	0.0046 J	0.0231	ND (0.0015)	ND (0.0036)	0.0064	0.0364	0.0546	0.0272	0.0082	0.013	0.027	0.0389	0.0037	0.0052	0.0089	0.0048	0.0054	0.0030 J	0.0054	0.0089
Carbon tetrachloride	4	2	mg/kg	ND (0.0021)	ND (0.0027)	ND (0.00088)	ND (0.0021)	ND (0.0015)	ND (0.0029)	ND (0.0029)	ND (0.0019)	ND (0.0014)	ND (0.0013)	ND (0.0019)	ND (0.0041)	ND (0.00080)	ND (0.00069)	ND (0.0013)	ND (0.0012)	ND (0.0015)	ND (0.0016)	ND (0.0011)	ND (0.0011)
Chlorobenzene	7400	510	mg/kg	ND (0.0014)	ND (0.0017)	ND (0.00056)	ND (0.0014)	ND (0.00095)	ND (0.0018)	ND (0.0019)	ND (0.0012)	ND (0.00088)	ND (0.00087)	ND (0.0012)	ND (0.0026)	ND (0.00052)	ND (0.00044)	ND (0.00083)	ND (0.00076)	ND (0.00094)	ND (0.0010)	ND (0.00072)	ND (0.00071)
Chloroethane	1100	220	mg/kg	ND (0.0026)	ND (0.0034)	ND (0.0011)	ND (0.0027)	ND (0.0018)	ND (0.0036)	ND (0.0036) *	ND (0.0024) *	ND (0.0017)	ND (0.0017)	ND (0.0023) *	ND (0.0010) *	ND (0.00086) *	ND (0.0016)	ND (0.0015)	ND (0.0018) *	ND (0.0020) *	ND (0.0014) *	ND (0.0014) *	ND (0.0014) *
Chloroform	2	0.6	mg/kg	ND (0.0014)	ND (0.0018)	ND (0.00059)	ND (0.0014)	ND (0.0010)	ND (0.0019)	ND (0.0020)	ND (0.0013)	ND (0.00093)	ND (0.00091)	ND (0.0013)	ND (0.0028)	ND (0.00054)	ND (0.00047)	ND (0.00087)	ND (0.00080)	ND (0.00099)	ND (0.0011)	ND (0.00075)	ND (0.00075)
Chloromethane	12	4	mg/kg	ND (0.0075)	ND (0.0097)	ND (0.0031)	ND (0.0076)	ND (0.0053)	ND (0.010)	ND (0.010) *	ND (0.0067) *	ND (0.0049)	ND (0.0048)	ND (0.0066) *	ND (0.015) *	ND (0.0029) *	ND (0.0025) *	ND (0.0046)	ND (0.0042)	ND (0.0052) *	ND (0.0056) *	ND (0.0040) *	ND (0.0039) *
Cyclohexane	-	-	mg/kg	ND (0.0016)	ND (0.0020)	ND (0.00065)	ND (0.0016)	ND (0.0011)	ND (0.0021)	0.0149	0.0095	ND (0.0010)	ND (0.0010)	ND (0.0014)	ND (0.0030)	ND (0.00059)	ND (0.00051)	ND (0.00095)	ND (0.00087)	ND (0.0011)	ND (0.0012)	ND (0.00082)	ND (0.00082)
1,2-Dibromo-3-chloropropane	0.2	0.08	mg/kg	ND (0.0032)	ND (0.0041)	ND (0.0013)	ND (0.0032)	ND (0.0023)	ND (0.0043)	ND (0.0044)	ND (0.0029)	ND (0.0021)	ND (0.0021)	ND (0.0028)	ND (0.0062)	ND (0.0012)	ND (0.0010)	ND (0.0020)	ND (0.0018)	ND (0.0022)	ND (0.0024)	ND (0.0017)	ND (0.0017)
Dibromochloromethane	8	3	mg/kg	ND (0.0013)	ND (0.0017)	ND (0.00054)	ND (0.0013)	ND (0.00091)	ND (0.0018)	ND (0.0018)	ND (0.0012)	ND (0.00084)	ND (0.00083)	ND (0.0011)	ND (0.0025)	ND (0.00049)	ND (0.00042)	ND (0.00079)	ND (0.00072)	ND (0.00090)	ND (0.00097)	ND (0.00088)	ND (0.00088)
1,2-Dibromoethane	0.04	0.008	mg/kg	ND (0.0013)	ND (0.0016)	ND (0.00052)	ND (0.0013)	ND (0.00087)	ND (0.0017)	ND (0.0017)	ND (0.0011)	ND (0.00081)	ND (0.00080)	ND (0.0011)	ND (0.0024)	ND (0.00041)	ND (0.00076)	ND (0.00070)	ND (0.00087)	ND (0.00093)	ND (0.00086)	ND (0.00086)	ND (0.00085)
1,2-Dichlorobenzene	59000	5300	mg/kg	ND (0.0012)	ND (0.0015)	ND (0.00049)	ND (0.0012)	ND (0.00082)	ND (0.0016)	ND (0.0016)	ND (0.0010)	ND (0.00076)	ND (0.00075)	ND (0.0010)	ND (0.0023)	ND (0.00045)	ND (0.00038)	ND (0.00071)	ND (0.00065)	ND (0.00081)	ND (0.00088)	ND (0.00062)	ND (0.00061)
1,3-Dichlorobenzene	59000	5300	mg/kg	ND (0.0014)	ND (0.0018)	ND (0.00057)	ND (0.0014)	ND (0.00097)	ND (0.0019)	ND (0.0019)	ND (0.0012)	ND (0.00089)	ND (0.00088)	ND (0.0012)	ND (0.0027)	ND (0.00052)	ND (0.00045)	ND (0.00084)	ND (0.00077)	ND (0.00096)	ND (0.0010)	ND (0.00073)	ND (0.00072)
1,4-Dichlorobenzene	13	5	mg/kg	ND (0.0013)	ND (0.0017)	ND (0.00055)	ND (0.0013)	ND (0.00093)	ND (0.0018)	ND (0.0018)	ND (0.0012)	ND (0.00086)	ND (0.00084)	ND (0.0012)	ND (0.0026)	ND (0.00050)	ND (0.00043)	ND (0.00081)	ND (0.00074)	ND (0.00092)	ND (0.00099)	ND (0.00070)	ND (0.00069)
Dichlorodifluoromethane	230000	490	mg/kg	ND (0.0024)	ND (0.0031)	ND (0.0010)	ND (0.0025)	ND (0.0017)	ND (0.0033)	ND (0.0033)	ND (0.0022)	ND (0.0016)	ND (0.0016)	ND (0.0021)	ND (0.0047)	ND (0.00093)	ND (0.00080)	ND (0.0015)	ND (0.0014)	ND (0.0017)	ND (0.0018)	ND (0.0013)	ND (0.0013)
1,1-Dichloroethane	24	8	mg/kg	ND (0.0015)	ND (0.0019)	ND (0.00061)	ND (0.0015)	ND (0.0010)	ND (0.0020)	ND (0.0020)	ND (0.0013)	ND (0.00096)	ND (0.00094)	ND (0.0013)	ND (0.0029)	ND (0.00056)	ND (0.00048)	ND (0.00090)	ND (0.00082)	ND (0.0010)	ND (0.0011)	ND (0.00078)	ND (0.00077)
1,2-Dichloroethane	3	0.9	mg/kg	ND (0.0018)	ND (0.0023)	ND (0.00075)	ND (0.0018)	ND (0.0013)	ND (0.0024)	ND (0.0025)	ND (0.0016)	ND (0.0012)	ND (0.0012)	ND (0.0016)	ND (0.0035)	ND (0.00069)	ND (0.00059)	ND (0.0011)	ND (0.0010)	ND (0.0013)	ND (0.0014)	ND (0.00095)	ND (0.00095)
1,1-Dichloroethene	150	11	mg/kg	ND (0.0025)	ND (0.0032)	ND (0.0010)	ND (0.0025)	ND (0.0018)	ND (0.0034)	ND (0.0035)	ND (0.0023)	ND (0.0016)	ND (0.0016)	ND (0.0022)	ND (0.0049)	ND (0.00096)	ND (0.00082)	ND (0.0015)	ND (0.0014)	ND (0.0018)	ND (0.0019)	ND (0.0013)	ND (0.0013)
cis-1,2-Dichloroethene	560	230	mg/kg	ND (0.0037)	ND (0.0047)	ND (0.0015)	ND (0.0037)	ND (0.0026)	ND (0.0050)	ND (0.0050)	ND (0.0033)	ND (0.0024)	ND (0.0023)	ND (0.0032)	ND (0.0071)	ND (0.0014)	ND (0.0012)	ND (0.0022)	ND (0.0020)	ND (0.0026)	ND (0.0028)	ND (0.0019)	ND (0.0019)
trans-1,2-Dichloroethene	720	300	mg/kg	ND (0.0026)	ND (0.0033)	ND (0.0011)	ND (0.0026)	ND (0.0018)	ND (0.0035)	ND (0.0035)	ND (0.0023)	ND (0.0017)	ND (0.0016)	ND (0.0023)	ND (0.0050)	ND (0.00097)	ND (0.00084)	ND (0.0016)	ND (0.0014)	ND (0.0018)	ND (0.0019)	ND (0.0013)	ND (0.0013)
1,2-Dichloropropane	5	2	mg/kg	ND (0.0016)	ND (0.0020)	ND (0.00065)	ND (0.0016)	ND (0.0011)	ND (0.0021)	ND (0.0021)	ND (0.0014)	ND (0.0010)	ND (0.0010)	ND (0.0014)	ND (0.0030)	ND (0.00059)	ND (0.00051)	ND (0.00095)	ND (0.00087)	ND (0.0011)	ND (0.0012)	ND (0.00082)	ND (0.00082)
cis-1,3-Dichloropropene	7	2	mg/kg	ND (0.0014)	ND (0.0017)	ND (0.00056)	ND (0.0014)	ND (0.00095)	ND (0.0018)	ND (0.0019)	ND (0.0012)	ND (0.00088)	ND (0.00086)	ND (0.0012)	ND (0.0026)	ND (0.00051)	ND (0.00044)	ND (0.00082)	ND (0.00075)	ND (0.00094)	ND (0.0010)	ND (0.00071)	ND (0.00071)
trans-1,3-Dichloropropene	7	2	mg/kg	ND (0.0013)	ND (0.0016)	ND (0.00052)	ND (0.0013)	ND (0.00088)	ND (0.0017)	ND (0.0017)	ND (0.0011)	ND (0.00081)	ND (0.00080)	ND (0.0011)	ND (0.0024)	ND (0.00048)	ND (0.00041)	ND (0.00077)	ND (0.00070)	ND (0.00087)	ND (0.00094)	ND (0.00066)	ND (0.00066)
Ethylbenzene	110000	7800	mg/kg	ND (0.0021)	ND (0.0027)	ND (0.00088)	ND (0.0021)	ND (0.0015)	ND (0.0029)	0.0189	ND (0.0019)	ND (0.0014)	ND (0.0014)	ND (0.0019)	ND (0.0041)	ND (0.00081)	ND (0.00069)	ND (0.0013)	ND (0.0012)	ND (0.0015)	ND (0.0016)	ND (0.0011)	ND (0.0011)
Freon 113	-	-	mg/kg	ND (0.0029)	ND (0.0038)	ND (0.0012)	ND (0.0030)	ND (0.0021)	ND (0.0040)	ND (0.0040)	ND (0.0026)	ND (0.0019)	ND (0.0019)	ND (0.0026)	ND (0.0057)	ND (0.0011)	ND (0.00096)	ND (0.0018)	ND (0.0016)	ND (0.0020)	ND (0.0022)	ND (0.0015)	ND (0.0015)
2-Hexanone	-	-	mg/kg	ND (0.0049)	ND (0.0063)	ND (0.0020)	ND (0.0049)	ND (0.0															

Table 7.5  
Smith Creek and Smith Creek Pond Deep Sediment Screening  
Former Hess Port Reading Terminal Site  
Port Reading, New Jersey

Client Sample ID:					SS-25B	SS-25C	SS-26B	SS-26C	SS-27B	SS-28C	SS-29B	SS-29C	SS-30B	SS-30C	SS-31B	SS-31C	SS-32B	SS-32C	SS-33B	SS-33C	SS-34B	SS-34C	SS-35B	SS-35C
Sample Depth	NJ Non-Residential Direct Contact Soil	NJ Residential Direct Contact Soil			2.0-2.5	3.5-4.0	2.0-2.5	3.5-4.0	2.5-3.0	4.5-5.0	2.0-2.5	3.5-4.0	2.0-2.5	3.5-4.0	2.5-3.0	5.0-5.5	2.5-3.0	4.5-5.0	1.0-1.5	1.5-2.0	2.5-3.0	4.5-5.0	2.0-2.5	3.5-4.0
Date Sampled:					2/21/2019	2/21/2019	2/22/2019	2/22/2019	2/21/2019	2/21/2019	2/22/2019	2/22/2019	2/21/2019	2/21/2019	2/22/2019	2/22/2019	2/22/2019	2/22/2019	2/21/2019	2/21/2019	2/22/2019	2/22/2019	2/22/2019	2/22/2019
Matrix:					Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
MS Semi-volatiles (SW846 8270D)																								
2-Chlorophenol	2200	310	mg/kg	ND (0.045)	ND (0.058)	ND (0.026)	ND (0.035)	ND (0.032)	ND (0.052)	ND (0.057)	ND (0.038)	ND (0.030)	ND (0.030)	ND (0.039)	ND (0.079)	ND (0.024)	ND (0.021)	ND (0.031)	ND (0.030)	ND (0.035)	ND (0.036)	ND (0.028)	ND (0.026)	
4-Chloro-3-methyl phenol	-	-	mg/kg	ND (0.055)	ND (0.072)	ND (0.032)	ND (0.044)	ND (0.040)	ND (0.064)	ND (0.071)	ND (0.048)	ND (0.038)	ND (0.038)	ND (0.048)	ND (0.098)	ND (0.024)	ND (0.026)	ND (0.039)	ND (0.037)	ND (0.043)	ND (0.044)	ND (0.034)	ND (0.033)	
2,4-Dichlorophenol	2100	180	mg/kg	ND (0.077)	ND (0.10)	ND (0.045)	ND (0.061)	ND (0.056)	ND (0.089)	ND (0.099)	ND (0.066)	ND (0.053)	ND (0.052)	ND (0.066)	ND (0.14)	ND (0.042)	ND (0.036)	ND (0.054)	ND (0.052)	ND (0.060)	ND (0.062)	ND (0.048)	ND (0.046)	
2,4-Dimethylphenol	14000	1200	mg/kg	ND (0.16)	ND (0.21)	ND (0.094)	ND (0.13)	ND (0.12)	ND (0.19)	ND (0.21)	ND (0.14)	ND (0.11)	ND (0.11)	ND (0.14)	ND (0.29)	ND (0.088)	ND (0.075)	ND (0.11)	ND (0.11)	ND (0.13)	ND (0.13)	ND (0.099)	ND (0.095)	
2,4-Dinitrophenol	1400	120	mg/kg	ND (0.34)	ND (0.44)	ND (0.20)	ND (0.27)	ND (0.25)	ND (0.39)	ND (0.44)	ND (0.29)	ND (0.23)	ND (0.23)	ND (0.29)	ND (0.60)	ND (0.18)	ND (0.16)	ND (0.24)	ND (0.23)	ND (0.26)	ND (0.27)	ND (0.21)	ND (0.20)	
4,6-Dinitro-o-cresol	68	6	mg/kg	ND (0.097)	ND (0.13)	ND (0.057)	ND (0.078)	ND (0.070)	ND (0.11)	ND (0.12)	ND (0.083)	ND (0.066)	ND (0.066)	ND (0.083)	ND (0.17)	ND (0.053)	ND (0.045)	ND (0.068)	ND (0.065)	ND (0.075)	ND (0.077)	ND (0.060)	ND (0.057)	
2-Methylphenol	3400	310	mg/kg	ND (0.058)	ND (0.075)	ND (0.034)	ND (0.046)	ND (0.042)	ND (0.067)	ND (0.074)	ND (0.050)	ND (0.039)	ND (0.039)	ND (0.050)	ND (0.10)	ND (0.031)	ND (0.027)	ND (0.040)	ND (0.039)	ND (0.045)	ND (0.046)	ND (0.036)	ND (0.034)	
3,4-Methylphenol	-	-	mg/kg	ND (0.074)	ND (0.096)	ND (0.043)	ND (0.059)	ND (0.054)	ND (0.086)	ND (0.095)	ND (0.064)	ND (0.051)	ND (0.050)	ND (0.064)	ND (0.13)	ND (0.040)	ND (0.035)	ND (0.052)	ND (0.050)	ND (0.058)	ND (0.059)	ND (0.046)	ND (0.044)	
2-Nitrophenol	-	-	mg/kg	ND (0.060)	ND (0.077)	ND (0.035)	ND (0.047)	ND (0.043) <sup>a</sup>	ND (0.069) <sup>a</sup>	ND (0.077)	ND (0.051)	ND (0.041) <sup>a</sup>	ND (0.041) <sup>a</sup>	ND (0.052)	ND (0.11)	ND (0.033)	ND (0.028)	ND (0.042) <sup>a</sup>	ND (0.040) <sup>a</sup>	ND (0.046)	ND (0.048)	ND (0.037)	ND (0.035)	
4-Nitrophenol	-	-	mg/kg	ND (0.24)	ND (0.31)	ND (0.14)	ND (0.19)	ND (0.17)	ND (0.28)	ND (0.31) <sup>c</sup>	ND (0.21) <sup>a</sup>	ND (0.16)	ND (0.16)	ND (0.21)	ND (0.43)	ND (0.13)	ND (0.11) <sup>c</sup>	ND (0.17)	ND (0.16)	ND (0.19)	ND (0.19)	ND (0.15)	ND (0.14)	
Pentachlorophenol	3	0.9	mg/kg	ND (0.085)	ND (0.11)	ND (0.050)	ND (0.067)	ND (0.062)	ND (0.098)	ND (0.11)	ND (0.073)	ND (0.058)	ND (0.058)	ND (0.073)	ND (0.15)	ND (0.046)	ND (0.040)	ND (0.059)	ND (0.057)	ND (0.066)	ND (0.068)	ND (0.052)	ND (0.050)	
Phenol	210000	18000	mg/kg	ND (0.047)	ND (0.061)	ND (0.028)	ND (0.037)	ND (0.034)	ND (0.055)	ND (0.061)	ND (0.041)	ND (0.032)	ND (0.032)	ND (0.041)	ND (0.084)	ND (0.026)	ND (0.022)	ND (0.033)	ND (0.032)	ND (0.037)	ND (0.038)	ND (0.029)	ND (0.028)	
2,3,4,6-Tetrachlorophenol	-	-	mg/kg	ND (0.060)	ND (0.077)	ND (0.035)	ND (0.047)	ND (0.043) <sup>a</sup>	ND (0.069) <sup>a</sup>	ND (0.077)	ND (0.051)	ND (0.041) <sup>a</sup>	ND (0.041) <sup>a</sup>	ND (0.052)	ND (0.11)	ND (0.033)	ND (0.028)	ND (0.042) <sup>a</sup>	ND (0.040) <sup>a</sup>	ND (0.047)	ND (0.048)	ND (0.037)	ND (0.035)	
2,4,5-Trichlorophenol	68000	6100	mg/kg	ND (0.068)	ND (0.088)	ND (0.040)	ND (0.053)	ND (0.049) <sup>a</sup>	ND (0.078) <sup>a</sup>	ND (0.087)	ND (0.058)	ND (0.046) <sup>a</sup>	ND (0.046) <sup>a</sup>	ND (0.058)	ND (0.12)	ND (0.037)	ND (0.032)	ND (0.047) <sup>a</sup>	ND (0.045) <sup>a</sup>	ND (0.053)	ND (0.054)	ND (0.042)	ND (0.040)	
2,4,6-Trichlorophenol	74	19	mg/kg	ND (0.054)	ND (0.070)	ND (0.032)	ND (0.043)	ND (0.039)	ND (0.062)	ND (0.069)	ND (0.046)	ND (0.037)	ND (0.037)	ND (0.046)	ND (0.096)	ND (0.029)	ND (0.025)	ND (0.038)	ND (0.036)	ND (0.042)	ND (0.043)	ND (0.033)	ND (0.032)	
Acenaphthene	37000	3400	mg/kg	ND (0.031)	ND (0.040)	ND (0.018)	ND (0.025)	ND (0.023)	ND (0.036)	ND (0.040)	ND (0.027)	ND (0.021)	ND (0.021)	ND (0.027)	ND (0.055)	ND (0.017)	ND (0.015)	ND (0.022)	ND (0.021)	ND (0.024)	ND (0.025)	ND (0.019)	ND (0.018)	
Acenaphthylene	300000	NA	mg/kg	ND (0.046)	ND (0.059)	ND (0.027)	ND (0.036)	ND (0.033)	ND (0.053)	ND (0.059)	ND (0.039)	ND (0.031)	ND (0.031)	ND (0.040)	ND (0.081)	ND (0.025)	ND (0.021)	ND (0.032)	ND (0.031)	ND (0.036)	0.0646 J	ND (0.028)	ND (0.027)	
Acetophenone	5	2	mg/kg	ND (0.019)	ND (0.025)	0.0251 J	ND (0.015)	ND (0.014)	ND (0.023)	ND (0.025)	ND (0.017)	ND (0.013)	ND (0.013)	ND (0.017)	ND (0.034)	ND (0.011)	ND (0.0091)	ND (0.014)	ND (0.013)	ND (0.015)	ND (0.016)	ND (0.012)	ND (0.011)	
Anthracene	30000	17000	mg/kg	ND (0.055)	ND (0.072)	ND (0.032)	ND (0.044)	ND (0.040)	ND (0.064)	ND (0.071)	0.0612 J	ND (0.038)	ND (0.038)	ND (0.048)	ND (0.098)	ND (0.030)	ND (0.026)	ND (0.039)	ND (0.037)	ND (0.043)	0.0708 J	ND (0.034)	ND (0.033)	
Atrazine	2400	210	mg/kg	ND (0.039) <sup>a</sup>	ND (0.050) <sup>a</sup>	ND (0.023)	ND (0.031)	ND (0.028)	ND (0.045)	ND (0.050)	ND (0.033)	ND (0.026)	ND (0.026)	ND (0.033)	ND (0.069)	ND (0.021)	ND (0.018)	ND (0.027)	ND (0.026)	ND (0.030)	ND (0.031)	ND (0.024)	ND (0.023)	
Benzo(a)anthracene	17	5	mg/kg	ND (0.026)	ND (0.033)	ND (0.015)	ND (0.020)	0.0871	ND (0.030)	ND (0.033)	0.0973	ND (0.017)	ND (0.017)	0.0482 J	ND (0.045)	0.0186 J	ND (0.012)	ND (0.016)	ND (0.017)	0.0654 J	0.294	0.0230 J	ND (0.015)	
Benzo(a)pyrene	2	0.5	mg/kg	ND (0.041)	ND (0.053)	ND (0.024)	ND (0.032)	0.109 <sup>c</sup>	ND (0.048) <sup>a</sup>	ND (0.053)	0.0817	ND (0.028) <sup>a</sup>	ND (0.028) <sup>a</sup>	0.0489 J	ND (0.073)	ND (0.022)	0.0241 J	ND (0.029) <sup>a</sup>	ND (0.028) <sup>a</sup>	0.0661 J	0.257	ND (0.025)	ND (0.024)	
Benzo(b)fluoranthene	17	5	mg/kg	ND (0.040)	ND (0.052)	ND (0.023)	ND (0.032)	0.106	ND (0.046)	ND (0.051) <sup>c</sup>	0.109 <sup>c</sup>	ND (0.027)	ND (0.027)	0.0503 J	ND (0.071)	0.0221 J	0.0289 J <sup>c</sup>	ND (0.028)	0.0650 J	0.255	ND (0.025)	ND (0.024)		
Benzo(g,h,i)perylene	30000	380000	mg/kg	ND (0.045)	ND (0.059)	ND (0.026)	ND (0.036)	0.0715	ND (0.052)	ND (0.058)	0.0653 J	ND (0.031)	ND (0.031)	ND (0.039)	ND (0.080)	ND (0.025)	ND (0.021)	ND (0.032)	ND (0.030)	0.0469 J	0.137	ND (0.028)	ND (0.027)	
Benzo(k)fluoranthene	170	45	mg/kg	ND (0.042)	ND (0.055)	ND (0.025)	ND (0.033)	0.0399 J	ND (0.049)	ND (0.054)	ND (0.036)	ND (0.029)	ND (0.029)	ND (0.036)	ND (0.075)	ND (0.023)	ND (0.020)	ND (0.029)	ND (0.028)	0.0346 J	0.102	ND (0.026)	ND (0.025)	
4-Bromophenyl phenyl ether	-	-	mg/kg	ND (0.035) <sup>b</sup>	ND (0.045) <sup>b</sup>	ND (0.020)	ND (0.028) <sup>b</sup>	ND (0.025)	ND (0.040)	ND (0.045)	ND (0.030)	ND (0.024)	ND (0.024)	ND (0.030) <sup>b</sup>	ND (0.062) <sup>b</sup>	ND (0.019) <sup>b</sup>	ND (0.016)	ND (0.024)	ND (0.023)	ND (0.027) <sup>b</sup>	ND (0.028) <sup>b</sup>	ND (0.022) <sup>b</sup>	ND (0.021) <sup>b</sup>	
Butyl benzyl phthalate	14000	1200	mg/kg	ND (0.022) <sup>a</sup>	ND (0.029) <sup>a</sup>	ND (0.013)	ND (0.017) <sup>c</sup>	ND (0.016) <sup>a</sup>	ND (0.026) <sup>a</sup>	ND (0.019) <sup>c</sup>	ND (0.015) <sup>c</sup>	ND (0.015) <sup>c</sup>	ND (0.015) <sup>c</sup>	ND (0.019) <sup>c</sup>	ND (0.039) <sup>c</sup>	ND (0.012) <sup>c</sup>	ND (0.010) <sup>c</sup>	ND (0.015) <sup>a</sup>	ND (0.017) <sup>a</sup>	ND (0.018) <sup>a</sup>	ND (0.014) <sup>a</sup>	ND (0.013) <sup>a</sup>		
1,1'-Biphenyl	240	61	mg/kg	ND (0.012)	ND (0.016)	ND (0.0072)	ND (0.0098)	0.0093 J	ND (0.014)	0.0283 J	0.0137 J	ND (0.0084)	ND (0.0084)	ND (0.011)	ND (0.022)	ND (0.0067)	ND (0.0058)	ND (0.0088)	ND (0.0096)	ND (0.0099)	ND (0.0077)	ND (0.0073)		
Benzaldehyde	68000	6100	mg/kg	ND (0.022)	ND (0.029)	ND (0.013)	ND (0.018)	ND (0.016)	ND (0.026)	ND (0.029)	ND (0.019)	ND (0.015)	ND (0.015)	ND (0.019)	ND (0.040)	ND (0.012)	ND (0.010)	ND (0.015)	ND (0.017)	ND (0.018)	ND (0.014)	ND (0.013)		
2-Chloronaphthalene	-	-	mg/kg	ND (0.022)	ND (0.028)	ND (0.013)	ND (0.017)	ND (0.016)	ND (0.025)	ND (0.028)	ND (0.01818													



Table 7.5  
Smith Creek and Smith Creek Pond Deep Sediment Screening  
Former Hess Port Reading Terminal Site  
Port Reading, New Jersey

Client Sample ID:				SS-25B	SS-25C	SS-26B	SS-26C	SS-27B	SS-28C	SS-29B	SS-29C	SS-30B	SS-30C	SS-31B	SS-31C	SS-32B	SS-32C	SS-33B	SS-33C	SS-34B	SS-34C	SS-35B	SS-35C
Sample Depth	NJ Non-Residential Direct Contact Soil	NJ Residential Direct Contact Soil		2.0-2.5	3.5-4.0	2.0-2.5	3.5-4.0	2.5-3.0	4.5-5.0	2.0-2.5	3.5-4.0	2.0-2.5	3.5-4.0	2.5-3.0	5.0-5.5	2.5-3.0	4.5-5.0	1.0-1.5	1.5-2.0	2.5-3.0	4.5-5.0	2.0-2.5	3.5-4.0
Date Sampled:			2/21/2019	2/21/2019	2/22/2019	2/22/2019	2/21/2019	2/21/2019	2/22/2019	2/22/2019	2/21/2019	2/21/2019	2/22/2019	2/22/2019	2/22/2019	2/22/2019	2/21/2019	2/21/2019	2/22/2019	2/22/2019	2/22/2019	2/22/2019	
Matrix:			Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil	Soil
Metals Analysis																							
Aluminum	NA	78000	mg/kg	28700	35300	24300	27800	15000	17800	31100	29700	29700	34300	32900	31900	22100	19000	5980	5390	30900	26300	30100	33300
Antimony	450	31	mg/kg	<5.6	<7.0	<3.2	<4.4	<3.8	<6.4	<7.2	<4.9	<4.0	<3.8	<4.6	<11	<3.0	2.7	<3.7	<3.7	<4.6	5.8	<3.4	<3.3
Arsenic	19	19	mg/kg	8.3	18.2	34.7 <sup>†</sup>	36.2 <sup>†</sup>	86.5	12.3	64.4	123 <sup>†</sup>	17.9	11.1	28.8	30.8	22.1	12.9	11.7	11.1	139	175 <sup>†</sup>	92.7 <sup>†</sup>	96.6 <sup>†</sup>
Barium	59000	16000	mg/kg	60.9	<70	276	375	107	65.5	558	554	70.9	68.7	72.1	<110	36.6	34.7	67.5	59.8	315	352	538	811
Beryllium	140	16	mg/kg	1.1	1.5	2.7	2.3	1.6	1.6	3.2	3.2	1.6	1.5	1.1	<1.1	0.5	0.48	1.5	1.3	1.3	1.6	3.4	3.3
Cadmium	78	78	mg/kg	<1.4	<1.7	<0.81	<1.1	<1.9 <sup>g</sup>	<1.6	4.6	3.7	<2.0 <sup>g</sup>	<1.9 <sup>g</sup>	<1.1	<2.6	3.1	2.1	<1.8 <sup>g</sup>	<1.9 <sup>g</sup>	5	2.7	<0.84	<0.82
Calcium	-	-	mg/kg	2560	4110	5310	9340	2390	2740	7320	7780	3980	7350	2080	4320	<760	<650	2070	2360	2890	3580	14700	17200
Chromium	-	-	mg/kg	46.3	53.2	33.1	43.1 <sup>†</sup>	91.1	52.8	276	514 <sup>†</sup>	49.6	48.9	50.1	48.3	30.6	28.3	47.3	44.8	177	117	75.5 <sup>†</sup>	72.4 <sup>†</sup>
Cobalt	590	1600	mg/kg	<14	<17	11.8	<11	14.7	<16	<18	18.3	15.1	13.6	11.4	<26	<7.6	7.1	13.7	12.1	13.1	16.4	19.9	13.5
Copper	45000	3100	mg/kg	15	28.5	37.2 <sup>†</sup>	31.4 <sup>†</sup>	175 <sup>g</sup>	17.1	442	283 <sup>†</sup>	25.5 <sup>g</sup>	23.2 <sup>g</sup>	71.2	92.1	123	169	29.0 <sup>g</sup>	21.4 <sup>g</sup>	586	1100 <sup>†</sup>	69.7 <sup>†</sup>	61.5 <sup>†</sup>
Iron	-	-	mg/kg	24400	38600	37800	51300	45000	42000	71400	66100	53700	45300	34000	35100	26600	13800	42100	42800	44400	53800	87500	80600
Lead	800	400	mg/kg	18.2	31	23.5 <sup>†</sup>	22.0 <sup>†</sup>	226 <sup>g</sup>	18.7	297	179 <sup>†</sup>	36.1 <sup>g</sup>	26.7 <sup>g</sup>	61.4	72.1	67.1	89.5	66.5 <sup>g</sup>	22.4 <sup>g</sup>	370	527 <sup>†</sup>	40.7 <sup>†</sup>	40.4 <sup>†</sup>
Magnesium	-	-	mg/kg	7060	9010	2770	6450	8710	9450	7220	6680	9860	9620	6480	5680	1540	1250	9140	8810	7230	9460	5870	6560
Manganese	5900	11000	mg/kg	192	280	67.3 <sup>†</sup>	120 <sup>†</sup>	363 <sup>g</sup>	336	198	305 <sup>†</sup>	1220 <sup>g</sup>	677 <sup>g</sup>	203	147	76.9	54.4	434 <sup>g</sup>	453 <sup>g</sup>	311	388 <sup>†</sup>	209 <sup>†</sup>	237 <sup>†</sup>
Mercury	65	23	mg/kg	<0.069	<0.067	0.099	0.4	2.6	<0.073	3	3.5	0.065	0.058	1.5	1.1	0.49	0.17	0.089	<0.044	11.4	3.5	1.5	1.4
Nickel	23000	1600	mg/kg	25.8	40.5	38.7	36.8	55.3	33	103	68.4	39.1	37.3	35.1	32.2	25.7	26	36.6	33.3	59	105	78.9	47.3
Potassium	-	-	mg/kg	6180	6920	1690	<2200	5470	6800	<3600	4110	6300	6360	4630	<5300	<1500	<1300	5850	5500	4120	5230	2810	2880
Selenium	5700	390	mg/kg	<5.6	<7.0	<6.5 <sup>†</sup>	<8.8 <sup>†</sup>	<7.6 <sup>g</sup>	<6.4	<7.2	<9.7 <sup>†</sup>	<8.0 <sup>g</sup>	<7.7 <sup>g</sup>	<4.6	<11	<3.0	<2.6	<7.3 <sup>g</sup>	<7.4 <sup>g</sup>	9.8	28.6 <sup>†</sup>	<17 <sup>†</sup>	<9.8 <sup>†</sup>
Silver	5700	390	mg/kg	<1.4	<1.7	<1.6 <sup>†</sup>	<2.2 <sup>†</sup>	<1.9 <sup>g</sup>	<1.6	5.2	<2.4 <sup>†</sup>	<2.0 <sup>g</sup>	<1.9 <sup>g</sup>	<1.1	<2.6	1.1	0.73	<1.8 <sup>g</sup>	<1.9 <sup>g</sup>	5.4	3.4 <sup>†</sup>	<4.2 <sup>†</sup>	<2.5 <sup>†</sup>
Sodium	-	-	mg/kg	10200	13500	4810	7170	6710	10900	18100	10300	7670	9160	7120	17900	2920	2190	7180	7070	5400	7100	1890	2740
Thallium	-	-	mg/kg	<2.8	<3.5	<3.2 <sup>†</sup>	<4.4 <sup>†</sup>	<3.8 <sup>g</sup>	<3.2	<7.2 <sup>†</sup>	<4.9 <sup>†</sup>	<4.0 <sup>g</sup>	<3.8 <sup>g</sup>	<2.3	<5.3	<1.5	<1.3	<3.7 <sup>g</sup>	<3.7 <sup>g</sup>	<4.6 <sup>†</sup>	<4.6 <sup>†</sup>	<8.4 <sup>†</sup>	<4.9 <sup>†</sup>
Vanadium	1100	78	mg/kg	62.3	75.6	143	144	105	64.9	428	221	66.3	65.5	59	71.2	51.5	49.2	61.6	57.5	113	58.1	517	177
Zinc	110000	23000	mg/kg	54.7	98.9	45.5	47.9	268	86.6	467	357	103	105	130	141	230	310	108	92.3	542	591	101	98.4

# **ATTACHMENT 8**

## **PHOTOGRAPHS**



**Former Bowtie Pool Complex  
Woodbridge, NJ**





Smith Creek  
Port Reading, NJ  
Fish Consumption Advisory Sign

